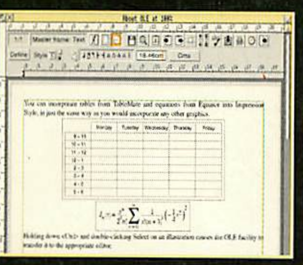
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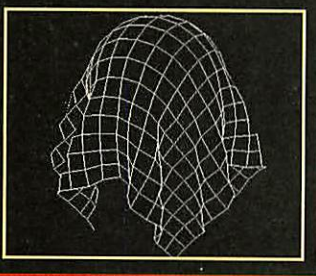
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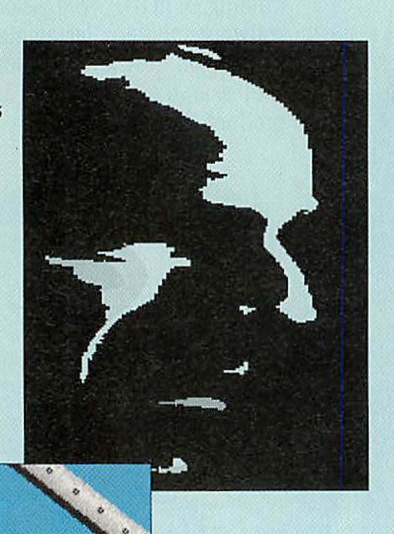




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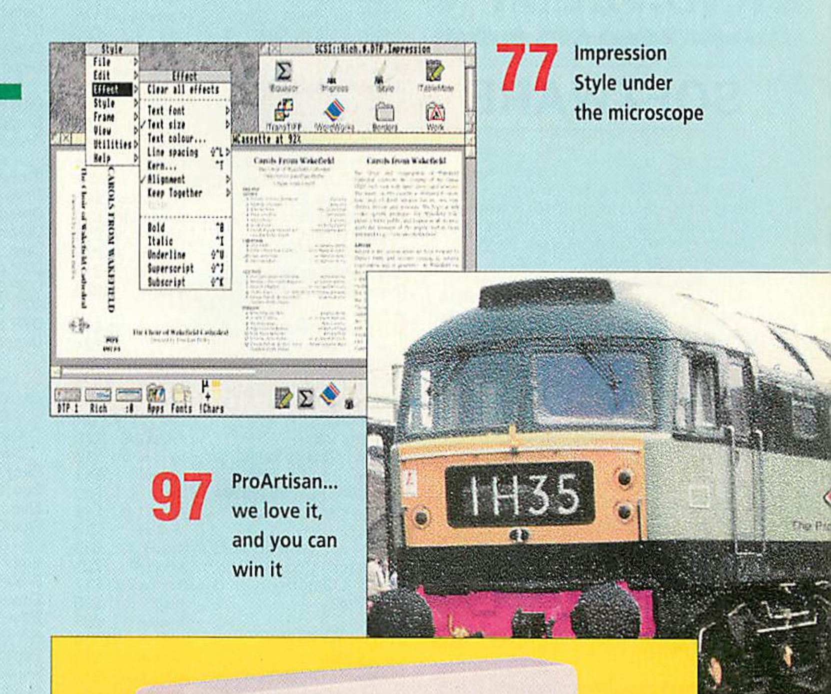
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Editor's letter

As you may notice from the addresses given throughout this issue, we've moved editorial offices up to Macclesfield. *Acorn User* is now part of Europress Enterprise Ltd, which will enable us to bring you even more of the expert coverage you're used to.

There have also been some editorial changes, and with this issue we say goodbye to Karen, editor through some of the most exciting changes *Acorn User* has ever seen. The magazine has improved in design and content considerably over the last year, mainly thanks to Karen and Tony, our art editor, and we'd like to express our thanks to them and all the team at Redwood. Here's to a rosy future for *Acorn User* at Europress.

Mark Moxon
Editor



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ProDrivers: Canon LBP8, Epson ESC-P2, HP Colourjet – each	Ace	£37
TurboDrivers: Canon, Epson Stylus 800, HP – each	CC	£42
ProArtisan 2	Clares	£102
ProCAD, KS4	Minerva	£394
Programming in ANSI Standard C on the Archimedes	Sigma	vo £15
Prophet (requires 2 Mb)	Apricote	£145
Prophet Entry Level	Apricote	£10

POSTAGE IS FREE
FOR CASH CUSTOMERS IN THE UK

ProSHEET	Silicon	£36
Protext	Arnor	£117
Provocator	Computer Tutorial	£15
Puncman 1 and 2	Chalksoft	£16
Puncman 3 and 4	Chalksoft	£16
Puncman 5 to 7	Chalksoft	£18
Punctuate	Xavier	£31
Punctuate!	Topologika	£25
QDBug	Leading Edge	£68
QPaint	CIS	£POA
Quark	Oregan	£22
Quest for Gold	Krisalis	£19
QuicKey	ICS	£10
– site licence		£30
Really Useful CD Rom Vol.2	APA	£48
Real McCoy 2	Fourth Dim	£23
Real McCoy 3	Fourth Dim	£23
Real McCoy 4	Fourth Dim	£27
Recall, age 8-13	Sherston	£37
Redshift	Minerva	£10
RemoteFS Parallel Port	Atomwide	£50
Render Bender 2	Clares	£77
Rephorm	Oak	£47
Repton 3	Superior	£19
Resultz offer till Christmas	Colton	**£97**
– primary site licence, offer		£196
– secondary site licence, offer		£394
Revelation 1	Longman	£39
Revelation 2	Longman	£75
Revelation 2 CD Rom	Longman	£98
Revelation ImagePro	Longman	£127
Reversals	Chalksoft	£17
Rhapsody 2	Clares	£44
Rhapsody 3	Clares	£79
Rhythm-Bed	Clares	£38
RhythmBox II, age 8+	EMR	£34
RiscBASIC Compiler	Silicon	£77
RiscForth Compiler	Silicon	£72
RISC OS 3 First Steps	Dabs	vo £15
RISC OS 3 Programmer's Reference Manual	Acorn	vo £99
RISC OS Companion Vol 1	Oak	vo £49
RISC OS Style Guide	Acorn	vo £13
RoboLogo	Silicon	£38
Round the World Yacht Race, age 9+	Storm	£25
Saloon Cars Deluxe	Fourth Dim	£23
– **Deluxe Extra Courses**		**£14**
S-Base 2 Developer	Longman	£193
S-Base 2 Personal	Longman	£119
S-Base Developer Plus	Longman	£255
S-Base Network	Longman	£275
Schedule	Acorn	£20
Schema	Clares	£95
Schema 2	Clares	£POA
Science, drawfiles	Micro Studio	£25
Score Draw	Clares	£44
Scorewriter PMS Desktop, age 12+	EMR	£147
ScreenPlay	Widgit	£35
ScreenTurtle version 2	Topologika	£45
Search and Rescue, age 9+	Storm	£27
Seashore Guide, drawfiles	Micro Studio	£16
Seelinks – Ourselves, KS1,2	ESM	£27
Seelinks – Pond Watch, KS2	ESM	£35
Seelinks – Tourism, KS3	ESM	£55
Seelinks – Transport, KS2	ESM	£35
Serenade	Clares	£106
Serpents	CIS	£POA
Settlement, KS3	ESM	£31
ShapeFX	Data Store	£10
ShareHolder	Silicon	£96
ShareHolder Professional	Silicon	£164
ShowPage	CC	£143
Shylock Gnomes, age 10-15	Selective	£16
Sim City	Krisalis	£22
Simon the Sorcerer	GamesWare	£31
SkyHunter	Longman	£22
Sleuth	RISC	£42
smArt	4mation	£50
smArt Aliens, Animals, Dinosaurs, Egypt, Europe†, Faces*, Fantasy, Fashion, Fiddles & Drums, Heraldry, Homes*, Leisure*, Look Smart, Smartoons, Trees and Gardens *English/French/German/Spanish/Welsh; †English/French/German; please specify each	4mation	£15
smArtFiler	4mation	£32
smArt Modern Languages	4mation	£19
Smudge the Spaniel, age 4-8	Storm	£20
Snippet (new version)	4mation	£32
Soapbox	Xavier	£34
SolidCAD	Silicon	£77
SolidsRender	Silicon	£77
SolidTools	Silicon	£204
– education price		£194
SongBook, age 3-10	EMR	£24
Sound Engineer, age 12+	EMR	£59
Sound-FX Maker	CIS	£POA
Sound-FX Maker & Photopia	CIS	£POA
Sounds & Rhymes	Xavier	£29
Spark	David Pilling	£5
SparkFS	David Pilling	£20
Sparkle	Morley	£59
Special	ICS	£10
– site licence		£30
Speech!	Superior	£18
Spelling week-by-week	Chalksoft	£20
Spex	ExpLAN	£98
Spheres of Chaos	Matt Black	£19
Splash, age 7-11	Sherston	£20
Splice	Ace	£34
Split an Image, age 7-16	Sherston	£16
Spoken Word	Wyddfa	£16
Spooler	Computer Tutorial	£9
Sporting Triangles	CDS	£19
SportsDay	Selective	£20
SportsPeople	Selective	£20
SpriteEd	Computer Tutorial	£17
SpySnatcher	Topologika	£12
Square Route	Computer Eyes	£16
Squirrel 2	Digital Services	£130
– site licence		£545
Squirrel C Developer's Toolkit	Digital Services	£96
Starspell Plus	Fisher-Marriott	£19
StartWrite	Icon	£55
StockPack	Topologika	£37
StoryBook, age 3-10	EMR	£59
StrongED	Stallion	£22
Studio24Plus Version 2, age 11+	EMR	£149
Studio24Plus Version 3, age 12+	EMR	£210
Stunt Racer 2000	Fourth	£25
SUMthing	Resource	£19
SuperDump	Silicon	£20
Superior Golf	Superior	£14
SuperPlot	Silicon	£20
Swiv	Krisalis	**£9**
TABS	ExpLAN	£95
Talisman	Minerva	£8
Talking Pendown	Longman	£54
Talking Pictures	Wyddfa	£16
Talking Rhymes	Topologika	£37
Target Maths	Triple R	£15
Technodream (Nevryon 2)	Superior	£19
TechWriter	Icon	£159
Thinklink	Xavier	£29
ThinkSheet	Fisher-Marriott	£38
Thundermonk	Minerva	£11
Tiles	Brain Games	£16
Timeshare	Fisher-Marriott	£19
Timetabler	Minerva	£549
Time Traveller, KS2	ESM	£37
– Britain Since the 1930s, KS2		£30
– Expansion, Trade and Industry, KS3		£36
– Making of the United Kingdom, KS3		£36
– Medieval Realms, KS3		£36
– The Victorians, KS2		£30
TinyDraw/TinyPuzzle	Topologika	£34
TinyPuzzle	Topologika	£24
Titler	Clares	£115
Toolkit Plus	Clares	£36
Tools Graphics, drawfiles	Micro Studio	£23
Topographer	Clares	£61
Touch Type	Iota	£38
Tower of Babel	Cygnus	£17
Trace	David Pilling	£5
Tracer	Midnight	£46
Tracker	Leading Edge	£37
Transport, drawfiles	Micro Studio	£25
Turbo Type	CIS	£POA
Turbo Type, Sound-FX Maker, E-Numix	CIS	£POA

ICS

051-625 1006

Tween	Ace	£35
Twin World	UBI Soft	£14
TWO (Task and Window Organiser)	ICS	£10
– site licence		£30
TypeStudio	RISC	£38
Utility Disc 1	Data Store	£8
Utility Disc 2	Data Store	£13
Utility Disc 3	Data Store	£7
Utility Collection	Data Store	£21
Vector	4mation	£75
Victorians, age 7-11	Sherston	£POA
View»Mac 3	Human	£65
– Arc/Mac Cable	Human	£24
Viewpoints, age 7-11	Sherston	£37
Virtual Golf	Fourth Dim	£25
Visual Backup	Dabhand	£39
Vox Box	Clares	£44
Waiter	Digital Services	£35
Waterloo (not OS 3.1)	Turcan	£19
Whale Facts	Topologika	£31
Wordbank	Topologika	£25
Words and Pictures	Chalksoft	£18
WordWorks	CC	£38
Wordz offer till Christmas	Colton	**£77**
– primary site licence, offer		£156
– secondary site licence, offer		£314
World Geography Maps, draw	Micro Studio	£23
WorldMaker, KS3,4	ESM	£51
World Map Study, KS3,4	ESM	£61
Worldscape	Leading Edge	£17
World Wildlife, sprites	Micro Studio	£16
Worra Battle	Oak	£15
WorraCAD	Oak	£79
Xenon 2	GamesWare	£21
Yacht 2	Computer Tutorial	£49
Yacht 7	Computer Tutorial	£94
Zarch	Superior	£14
Zelanites (not OS 3)	Micro Power	£15
Zool	Gremlin	£19

HARDWARE

COMPUTERS . . .

A3010 Action Pack	Acorn	£335
A3010 Learning Curve System	Acorn	£599
A3020 FD System	Acorn	£650
A3020 HD60 System	Acorn	£775
A4 2M FD System	Acorn	£1350
A4 4M HD60 System	Acorn	£1650
A4 Battery Pack	Acorn	£53
A4 Shoulder Bag	Acorn	£37
A5000 2M HD80 Multiscan System	Acorn	£1225
Pocket Book	Acorn	£169
– Class Pack		£1599

PRINTERS . . .

ArcLaser 300-6	Calligraph	£895
ArcServer 300-8	Calligraph	£985
Bubble Jet BJ-10sx	Canon	£187
Bubble Jet BJ-10sx + TurboDriver	Canon/CC	£219
Bubble Jet BJ-230	Canon	£315
Bubble Jet BJ-300	Canon	£325
Bubble Jet BJ-330	Canon	£380
Bubble Jet BJC-600 + TurboDriver	Canon/CC	£535
Bubble Jet BJC-800 + TurboDriver	Canon/CC	£1374
DeskJet 510	Hewlett-Packard	£275
DeskJet 500C	Hewlett-Packard	£375
DeskJet 550C	Hewlett-Packard	**£455**
Laser Direct HiRes4 + Impression	CC	**£799**
– 250-sheet Paper Cassette		£99
Laser Direct HiRes8 + Impression	CC	**£1050**
Laser Direct HiRes Board	CC	£325
New toner cartridge for Canon LBP-4		£59
New toner cartridge for Canon LBP-8		£75

For ordering details please turn to page 3



SCANNERS, DIGITISERS . . .

ArcScanner including Epson GT-4000	Clares	£1660
Colour Converter	Lindis	£145
Eagle M2	Wild Vision	£POA
FaxScan	Spacetech	£94
GreyHawk	Wild Visiion	£98
Handipad	TechSoft	£193
Hawk V9 MkII	Wild Vision	
– standard		£199
– hardware dithered		£259
HiVision Digitiser Colour	HCCS	
– A3000 External		£137
– A3000 Series / A4000 Internal		£124
– A5000 / 300 / 400		£124
iMage (Sharp JX-100)	Irlam	
– for A5000		£490
– for other computers		£589
Image Scanner	Iota	£383
– Colour Upgrade Kit	Iota	£239
– Fast Parallel Card	Iota	£98
i-Scan 200	Irlam	£539
i-Scan 400	Irlam	£589
Pineapple Colour Video Digitiser	Pineapple	£195
– A3000 boxed	Pineapple	£230
ProImage (Epson GT6000)	Irlam	
– for A5000		£989
– for other computers		£1089
Scan-Light A4	CC	£277
Scan-Light 256	CC	£185
– A3000 External	CC	£190
– A3000 internal	CC	£190
Scan-Light Professional	CC	£565
– as above + SCSI interface	CC	£699
Scan-Light Video	CC	£208
Spectra	RISC	
– A3000 Series / A4000 Internal		£545
– A3000 External		£555
– Archimedes / A5000		£545
Vision Digitiser	HCCS	
– A5000 / 300 / 400 Mono		£48
– A5000 / 300 / 400 Colour		£76
– A3000 External Mono		£60
– A3000 External Colour		£89
– A3000 Series /A4000 Internal Mono		£48
– A3000 Series / A4000 Internal Colour		£76

MISCELLANEOUS. . .

386 PC Expansion Card 25 MHz	Aleph One	
– 1 Mb		£POA
– 4 Mb		£POA
486 PC Expansion Card	Aleph One	
– 1 Mb		£POA
– 4 Mb		£POA
4-slot 4-layer Backplane	IFEL	£52
5315 Monitor	Aydin	£425
A300/400 Fan kit	ICS	£15
A3000 Expansion Box	Wild Vision	£135
A310 RISC OS Carrier Board ‡	IFEL	£18
A5000 Fitting Kit for second hard disc	ICS	£15
A5000 105 Mb Removable Disc Kit		£POA
– Extra 105 Mb Disc		£POA
AnDi Oddule	Baildon	£39
Arckey Function KeyStrip Holder	ICS	V0 £3
– pack of 4		V0 £10
ArcNET	ACS	£69
ARM3 ‡	Aleph One/IFEL	£165
Arm_Stick	Arm_Tech	£28
ColourBurst	State	£374
ColourCard Gold	Wild Vision	£225
– A3000 External	Wild Vision	£225
Dongle Dangle with screw fittings	ICS	£6
Ergo-keyboard	Castle	£99
Fan filters (pack of 10) (not A5000)	ICS	£6
FaxPack	CC	£289
Floating Point Accelerator (A5000 + A540)	Acorn	£93
Floppy Discs, 10 × 3½" High Density		£10
G16 True Colour Card	State	£258
G8 Plus Accelerator	State	£238
HiPoint Mouse for A4	Genius	£49
I²C Adaptor	Baildon	£10
I²C SWI (enhanced IIC_Control)	Baildon	£15
– bought with AnDi Oddule		£5
Microlin fx Pocket Fax Modem	Pace	£179
Micro Mouse	Clares	£26
Monitor Stand for A3000	ICS	£21
Mono/SCSI	Atomwide	£48
Podule Case for A3000	HCCS	£16
Power Pad (Dual)	GamesWare	£34
Power Pad (Single)	GamesWare	£25
Printer Port Sampler	Leading Edge	£42
Printer/SCSI	Atomwide	£74
Publishing Pack	CC	£475
Revolution CD-ROM	Morley	£295
Revolution Pro (for SCSI system)	Morley	£435
RISC OS 3 Upgrade	Acorn	£75
Seal 'n Type spill-proof Keyboard Covers		
– Archimedes / A5000	Kador	£14
– A3000	Kador	£14
TouchWindow	Lindis	£234
Whisper Fan Quietener (for A300/A400 series only)	ICS	£15
Wizzo IDE Filing System on rom	ICS	
– Wizzo4 for A4		£POA
– Wizzo5 for A5000		£39

MEMORY . . .

Fitting extra unless otherwise stated
† Fitting fairly easy ‡ Fitting needs expertise

A3000 2 Mb Upgradable †	Atomwide/IFEL	£58
A3000 4 Mb †	Atomwide/IFEL	£120
A3010 1-2 Mb		£39
A3020 / A4000 2-4 Mb †	IFEL	£POA
A310 2 Mb Upgradable soldered ‡	IFEL	£94
– as above + MEMC1a		£119
– as above + MEMC1a + fitting		£149
A310 4 Mb soldered + MEMC1a ‡	IFEL	£159
– as above + fitting		£189
A4000 2-4 Mb	Simtec	£80
A5000 2-4 Mb †	Atomwide	£85
A5000 2-8 Mb including fitting	Atomwide	£500
A5000 4-8 Mb including fitting	Atomwide	£391
A540 4 Mb †	Acorn	£238



use an A5000?
need to back-up data quickly?
need to carry data from one computer to another?
wish you could lock important data away easily?

Could you



105 Mb floppy discs?

We've got some. They should really be called removable hard discs, but the difference is academic. Just install one of our SyQuest kits in your A5000 as though it were a second floppy disc drive. Now you can use 105 Mb removable discs as if they were fast floppies.

Removable discs cost about the same per megabyte as traditional floppies. Our complete package includes a drive, a fitting kit and one 105 Mb disc, formatted and tested. No soldering is required.

Each ICS kit also contains a special version of Wizzo - our own IDE filing system on rom. Acorn's filing system does not support removable hard discs (you would need to reset the machine every time you removed a disc).

Only Wizzo supports the SyQuest option.



And gives you disc partitions, password protection, and the ability to access more than 512 Mb of storage.

WIZZO SYQUEST COMPLETE PACKAGE £449
ADDITIONAL 105 MB DISCS £69 EACH

Wizzo5 owners: please return your rom in its original packaging and deduct £15.

HOW TO ORDER

VAT: Zero-rated items are marked V0. UK customers please add 17.5% to all other prices. EC customers outside the UK (including BFPO) please do the same unless you are VAT registered, in which case quote your international VAT number. Ours is GB 595 7258 84.

CARRIAGE IS FREE WITHIN MAINLAND UK IF YOU PAY ON ORDERING.

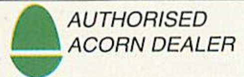
Overseas carriage: If you are paying by credit card we will add airmail and insurance at cost. Otherwise please add £6 (Europe) or at least £12 (elsewhere) for each software item and send a pounds sterling bank draft payable at a London clearing bank, or Eurocheques for not more than £100 each.

Credit cards are welcome. We do not charge your account until your order is fulfilled. Your name and address must be as known to the credit card company. If you are leaving an order on our answering machine please include your telephone number, the expiry date of your card, and your calculation of the total payment due. We will make no charge for credit card commission unless we have informed you first.

Official orders are welcome from UK government and educational institutions. Payment is due in 14 days. Invoices are subject to carriage and late payment charges.

Site licences are available for most products. Please check our prices.

All products, prices and specifications are offered in good faith and are subject to change without notice. We process all orders immediately, but suppliers do sometimes keep us waiting. Goods are guaranteed but we do not supply them on approval. Returns and cancellations can only be accepted by prior agreement and there may be a charge to cover the costs involved.



ICS (Ian Copestake Limited)
Dept B50, 1 Kington road, WIRRAL, Merseyside, L48 5ET
Tel: 051-625 1006 Fax: 051-625 1007

E&OE D61 931113 LICENSED CREDIT BROKER



ACORN WORLD SHOW REPORT

OVER 11,000 people visited the Acorn World show at the end of October, up on 1992's *Acorn User* Show attendance of about 10,000, but not markedly more than in 1991 figure.

It was a relatively quiet event with no big cut-price box-shifters of old – even fluorescent card signs were banned – and there were no earth-shattering new products from Acorn to drool over. Nevertheless, there were plenty of interesting things to see and do at the show.

Arm Ltd's surprise exhibit was a new Panasonic 3DO games console. Meanwhile, Arm Ltd's MD, Robin Saxby, renewed his *Acorn User* subscription after buying a ScanLight video card from Computer Concepts.

At the main entrance to the exhibition Acorn had built a technology arcade hinting at what it could be selling one day, as well as reminding everyone that Acorn is a 'green' company. Inside the arcade was a Sinclair-black mock-up of a futuristic workstation and portable, apparently penned by the same designer of the original BBC micro.

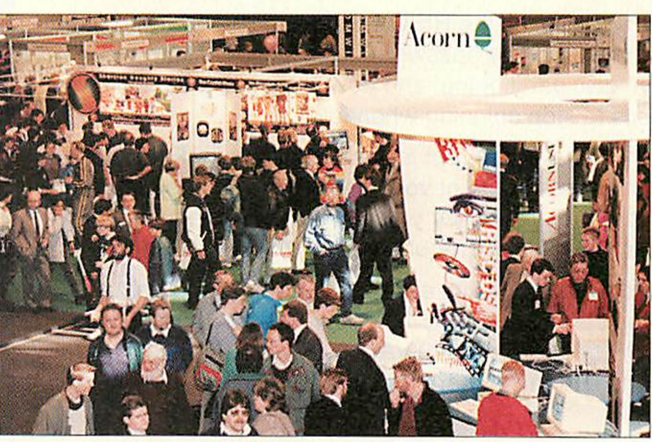
There were impressive demonstrations of digital sound and 24-bit colour – supposedly using Arm Vidc20 hardware. A demo of video telephony over an Ethernet network, which only offered very coarse resolution and a slow frame rate was less impressive, but certainly welcome.

An Acorn games arcade kept the kids happy playing all the latest alien-zapping releases, complete with special FX smoke and a laser display.

A complete monochrome printing press was the centre of attraction at another of Acorn's stands featuring professional pre-press DTP systems. Two editions of a special show magazine were produced and printed on the stand and *Acorn User* staff helped on the editorial side.

Nearby was the Acorn World theatre, with presentations by the hour – including a slot on Sunday featuring the *Acorn User* team describing how these very pages are put together. Among the other presentations were Kodak on Photo CD, Psion on pocket computing and Novell talking about networking.

As usual, Computer Concepts had the largest independent stand. *Impression Style* (see review on page 77) didn't quite make it to the show, but CC report that a huge number of upgrade orders were taken.



Bustling crowds at Acorn World '93

Over at the Integrex stand a new low cost 24-bit A4 colour scanner was unveiled, priced £399 and featuring David Pilling's new industry compatible TWAIN driver software. The Science Museum had a multimedia A5000 touch-screen inviting you to design a bike and see how it performs.

State Machine was showing off it's new ClusterCard 24-bit colour graphics accelerator and announced a new high speed IDE hard disc interface.

Over on the combined Aleph One/Atomwide stand the crew were celebrating the formation of a new networking company called ANT. Risc Developments was busy showing off their latest software and hardware ranges including the *Sleuth* OCR package and HD floppy interfaces.

Norwich Computer Services appeared to be doing a roaring trade in Syquest removable hard drives (not to mention NCS mugs) and there were more mugs to be found on the Colton Software stand, where many were getting their first glimpse of the new *Resultz/Wordz* hybrid, *Fireworkz*.

General opinion tends to suggest the show was successful, but while the Friday first day attendance of 5,000 was encouraging, Saturday and Sunday disappointingly failed to keep up.

New Acorn multiscan monitor by Microvitec

ACORN and Microvitec have re-established a partnership which originally saw the production of several hundred thousand Cub monitors for the BBC micro in the 1980s.

Microvitec has produced the new 14in AKF50 multiscan monitor for Acorn, which is a higher-quality alternative, though not a replacement, to the unloved and originally unreliable AKF18 monitor.

The AKF50 has a finer 0.28mm dot-pitch screen and can cope better with standard resolution displays like Mode 12. Acorn is offering the AKF50 as a £75 extra-cost option over systems which include an AKF18 as standard, or the monitor is available on its own at the recommended price of £375.



Acorn's new AKF 50

Preparing for Spring

FOLLOWING on from the huge success of last year's *Acorn User* Show in Harrogate, preparations are well underway for this year's larger event. The 1994 show takes place from 22 to 24 April, and has moved to the larger Hall C in the Harrogate Conference and Exhibition Centre. Of course, *Acorn User* will be there in force, as will more than 60 exhibitors from the Acorn scene.

For more details, contact Safesell Exhibitions on (0737) 814713, and keep your eyes on future issues for more details.



The ideA range

ICS was the first company to offer IDE products for Acorns back in 1990; now they are the standard choice for new Acorn computers. Building on three years' experience we have continually improved our IDE filing system. It now offers the highest level of RISC OS compliance, and compatibility with at least 45 different hard discs tested by us. Can any other supplier make this claim?

Our IDEFS abolishes the RISC OS limit of 512 Mb, and offers extra features such as password protection, background operation, disc partitioning, and power saving (which allows some discs to stop spinning when idle).

Partitions can have different levels of protection. Family or pupils can access some of your files while you keep others safely out of their reach. Or you can simply protect the whole disc (reformatting is not required for this).

Our hard disc upgrade kits are based around two internal interfaces at present: IDEA3IN for the A3000 Series, and IDEARCIN for the A300/A400/A500 Series. All kits are designed to a high standard and include all the parts you will need.

IDEA3IN upgrade kits include an I²C expansion socket as standard. They come with a 2½" disc already attached, and are easy to fit once you have opened up your computer. You may safely take no notice of rumours still being spread that internal upgrades might not be safe in an A3000. We have adhered carefully to the guidelines in Acorn's technical specifications, and in three years have never come across a problem.

IDEARCIN upgrade kits provide a fast 16-bit link all the way from the computer to the hard disc. They can even be fitted to an A310 without a backplane – quite a cost saving. A second hard disc can easily be added later if required.

Interfaces and hard discs can also be bought separately. By shopping around you may even save a few pounds. But beware: not all IDE hard discs work with all interfaces, and if you have a problem it may be difficult to decide who should put it right. We recommend buying a complete kit from one source.

WIZZO is the name given to our IDE filing system when it is supplied as a single rom chip. Wizzo5 is for the A5000, and Wizzo4 is for the A4. You should buy a Wizzo if you need password protection or wish to use larger hard discs. (Wizzo4 has been delayed slightly – we are adding a feature to ensure compatibility with possible future A4 upgrades).

A Wizzo rom by itself will only produce a slight speed improvement. If you need speed in an A5000, fit an IDEARCIN interface instead. Up to 60% improvement can then be achieved, but this does depend which hard disc you use so do check with us first.

How to read our ideA product references

A number at the end is the nominal hard disc capacity in megabytes. We usually round this down, so the actual formatted capacity may be higher. All discs have auto-parking. Average access times vary but all are below 20 ms.

All prices shown exclude VAT and are subject to change without notice. The cost to us for hard discs can vary enormously from week to week – not always downwards! Your local dealer can obtain *ideA* products from us or from a distributor.

Archimedes A300/A400/A500 Series Internal Upgrades

Package includes formatted hard disc, ideA interface card, hard disc cradle and fittings, fan kit, replacement multi-purpose LED (power and drive status), manual with fitting instructions. Can be fitted to an A310 without a backplane. If a backplane is used it must be a 4-layer type. Easily fitted by most users.

IDEARCIN 40*	£175	IDEARCIN 330	£399
IDEARCIN 80*	£205	IDEARCIN 420	£499
IDEARCIN 170	£275	IDEARCIN 540	£650
IDEARCIN 240	£325	IDEARCIN 1000	£925

A3000 Series Fully Internal Upgrades

Package includes formatted hard disc mounted on ideA interface card, manual with fitting instructions. Fully internal, using internal expansion slot. Co-exists with floppy drive and memory upgrades. Fits the new 1992 computers. Easily fitted subject to Acorn warranty stipulations.

IDEA3IN 40	£175
IDEA3IN 80	£250
IDEA3IN 120	£299
A3000 FAN KIT (not usually required*)	£19

**Only required if the computer has been fully upgraded, e.g. with maximum memory AND Econet AND an external podule.*

Separates for hard disc upgrades

We can only guarantee the performance of ideA interface cards with hard discs we have tested ourselves, so please check if in doubt. If you are buying a hard disc for an A5000 please say so. If you intend to fit the disc in addition to an existing one we need to know the make and model of the existing disc. Acorn's interface does not support all makes of disc, and some models will work as a second disc but not on their own.

Hard discs on their own are listed as, for example, IDEA 80. An S at the end indicates a 2½" disc.

IDEARCIN (Archimedes Interface for Internal disc(s))	£60
IDEA3IN (A3000 Interface for Internal disc)	£75
ARCHIMEDES INTERNAL CRADLE KIT	£15
ARCHIMEDES A300 / A400 SERIES FAN KIT	£15
4-SLOT 4-LAYER BACKPLANE	£52
POWER CABLE FOR SECOND HARD DISC	£5
A5000 SECOND HARD DISC FITTING KIT	£15

IDEA40*	£125	IDEA330	£349
IDEA80*	£155	IDEA420	£449
IDEA170	£225	IDEA540	£600
IDEA240	£275	IDEA1000	£875

IDEA40S	£115
IDEA80S	£190
IDEA120S	£239

WIZZO IDE Filing System on rom

Package includes rom, manual and fitting instructions. Compatible with RISC OS 3.0 and 3.1. Allows up to four logical partitions over two physical drives. Each partition appears separately on the icon bar and can have different password protection. Makes use of existing Acorn hardware for maximum compatibility, but works with a wider range of hard discs. Security breaches using ADFS can be prevented. Can be fitted easily by a competent user.

Available now: WIZZO5 for A5000	£39
Available soon: WIZZO4 for A4	POA

Quantity discounts available • Dealer enquiries welcome

** Lower-capacity 3½" discs are now very hard to obtain. Please check availability before ordering.*

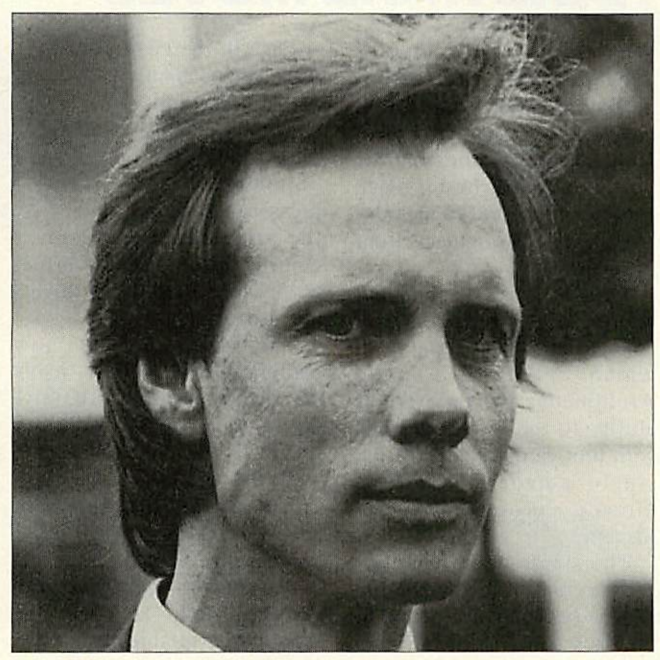


ICS (Ian Copestake Limited), Dept B50, 1 Kington road, WIRRAL, Merseyside, England, L48 5ET

COMMODORE INJUNCTION ON ACORN VIDEO

ACORN'S Christmas consumer marketing push has been embarrassed after the company got caught out in a minefield of its own making. Or that's how Commodore would put it. The company behind the Amiga slapped an injunction on Acorn banning their Home Computer Minefield video, which was being sent out to members of the public responding to Acorn's Christmas advertising campaign in the national press.

Commodore's objection is to references in the video which suggest that Amiga computers are only good for games and can't handle office/educational applications that were demonstrated by the video on Acorn computers.



Richard Percy, the man behind Acorn's video

Most Amiga computers can certainly run word processor, spreadsheet and DTP software and so on, but in the UK the vast majority of Commodore sales have been into the games market and a games-only console based on the Amiga was launched earlier this year. Acorn decided not to contest the injunction in order to concentrate on its second promotional video, which majors on computers in education. Acorn's sales & marketing director, Mike O'Riordan, commented: 'We believe the Acorn range is better for the home consumer, particularly in the home education area where we draw on our strengths as the leading supplier to UK education.'

He added: 'Acorn decided not to contest the ruling at the second hearing since we do not wish to enter a protracted legal argument with Commodore.'

Richard Percy, General Manager of the Consumer Division at Acorn, had originally gone for the video route over the normal 30 second TV advert because it allowed much more aggressive comparisons with rivals.

Now the video will be replaced by a less aggressive 'Parents guide' to home computing.

Rumour mill into overdrive

NO confidences are being breached by saying that Acorn is preparing to launch new computers in 1994; Acorn virtually admitted as much at the Acorn World show. However, exactly what the new computers will offer, when they will be seen and which Greek mythology code-names refer to the new machines is the subject of ever-growing speculation.

These aren't *Acorn User*'s views, but here's a summary of what the grapevine has been whispering.

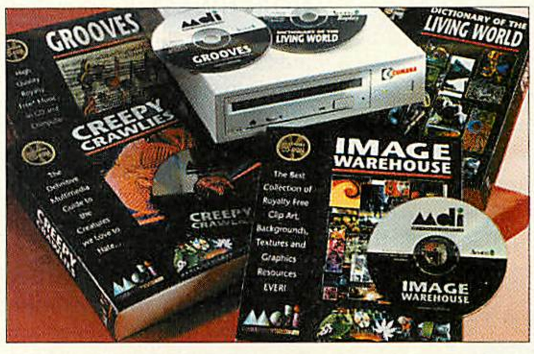
Apparently new machines have been sent out to some software and hardware developers already, despite rumours that nothing would be shown until February.

The Vidc20 chip in the new range will offer 24-bit photo-realistic colour potential, and there will probably be both Arm 600 and Arm 700-based models, the former appearing first. Certainly the machines being sent to developers are Arm600-based, as the Arm700 is not available in quantity yet.

A fast (16MHz) podule bus is being spoken of and memory speed and capacity will be higher than anything previously produced by Acorn. Last month we brought news of a possible co-processor capability which could run a PC-compatible chip in tandem with the Archimedes' indigenous Arm Risc processor.

In a recent interview with the Times Education Supplement's George Cole, Acorn's technical director Malcolm Bird said it won't be long before we will be able to see an Archimedes with more than one Arm processor, with a second chip looking after high speed graphics and communications – the use of Replay-style digital video links over ISDN (digital) telephone lines is one area Bird expresses great interest in.

Multimedia starter kit price cut



Cheaper CD-Rom from Cumana

CUMANA has chopped £400 off the price of its A5000 CD-Rom multimedia starter kit, which now starts at £1399 + VAT. Part of the reduction is explained by the fact that Cumana is using older, and now cheaper, 25MHz A5000s, while the entry-level kit sports Cumana's new low-cost SLCD 300 CD-Rom drive unit for the first time.

Bundled with all kits is a selection of seven CD-Rom titles plus other accessories. Cumana can be contacted on (0483) 503121.

● New software bundles based around Cumana's new low cost SLCD 300 CD ROM drive have been announced. Pack 1, priced £499 inc VAT, includes *Dictionary of the Living World*, *Creepy Crawlies*, *Image Warehouse* and *Grooves*. Pack 2 (£650) adds *The World of Number: Who stole the decimal point?* plus *The Times* and *Sunday Times* on CD-Rom.

In brief

Licenseware

Steve Hall of The Chroma Project wants to introduce a new low cost method of software distribution called Licenseware, which will attempt to secure a decent return to software authors yet maintain low prices to customers.

Public Domain and Shareware libraries are established low-cost sources of software, but if you're a software writer neither of these methods of distribution are necessarily going to make you rich. There are exceptions and in the US, especially, Shareware can be big business.

The problem is that many UK computer users are content to run, quite legally, un-registered versions of shareware applications they have downloaded from bulletin boards or received from PD/Shareware distributors. Unregistered shareware doesn't generate any income to the author. Steve Hall's idea is that Licenseware programs will be distributed from a central source via licensed PD and shareware libraries who will charge their customers a fixed price.

There will be a monthly sales return to the distributor and so a guaranteed income for the author for every distributed copy of his or her program. Software to be distributed this way would not require registration and would be full working copies with documentation. Steve Hall invites software authors to contact him for further details and he can be contacted on (0328) 862693.

Handicap race management software for sailors

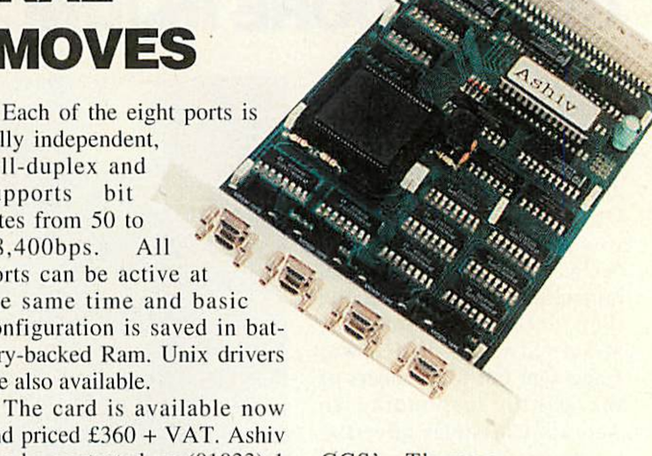
V L MacKinlay of 29 Corslet Road, Currie, Midlothian EH14 5LZ has written to tell us about his new software application for sailing fans which calculates and prints handicap race results. The software has been successfully tested at events in Scotland this summer. The software is expected to be available soon for £85, which includes updates.

INTERNATIONAL HARDWARE MOVES

THIS month we have news of two interesting Archimedes hardware expansions which have been developed abroad. One is an eight-port serial interface podule from France and the other an 8Mb memory upgrade which originates from Denmark.

Montreuil-based company Ashiv has produced the Octopus eight-port serial card, which gives a single Archimedes the theoretical ability to run 33 serial lines with four cards fitted, plus the single standard interface already present in the machine.

The single-width Octopus podule crams its eight nine-pin D-type serial connectors on to the back panel. Ashiv's Lorys Tildian says it should be very easy for software using serial access to be adapted for the Octopus board as standard SerialOp commands are catered for.



Each of the eight ports is fully independent, full-duplex and supports bit rates from 50 to 38,400bps. All ports can be active at the same time and basic configuration is saved in battery-backed Ram. Unix drivers are also available.

The card is available now and priced £360 + VAT. Ashiv can be contacted on (01033) 1 48 58 70 77 or fax (01033) 1 48 58 20 09.

From CCS in Denmark comes a new 8Mb Ram card for all Archimedes A400-series models. The compact upgrade, which contains 4Mb Ram and a second MemC1a chip on-board, is available from CCS based in Soborg.

To fit the card you need to solder 32 wires to resistors adjacent to your machine's existing 4Mb Ram, so the card isn't for novices. However, CCS' Thomas Christiansen tells us that anyone experienced with a soldering iron will find the job straightforward.

Space is a problem when fitting the card to an A300-series card, but it has been done. The card is available for £300 plus £10 P&P direct from CCS, Kildebakkegards Alle 42, DK-2860, Soborg, Denmark, tel. (01045) 31 67 89 00. Thomas Christiansen can also be contacted on the Arcade BBS as user number 30.

Semerc Mouser

NORTHWEST Semerc has revealed its latest hardware aids for computer users who have physical disabilities. The Semerc Mouser (£47+VAT) is an electronic unit which enables mouse button functionality to be controlled using external switches rather than the mouse itself.

The Semerc Roller (£89+VAT) is an easy-to-use trackerball, designed to replace the mouse for primary school children and those with poor motor control. For more information contact Northwest Semerc on 061-627 4469.



The Sermec Mouser

Mac transfer at last



COMPUTER Concepts has announced it is developing a utility to enable Archimedes users to access Mac discs. *MacFS* will work on Acorns with high density floppy drives and Risc OS 3, and will enable Arcs to read and write to a variety of Mac formats, including SuperDrive floppies, external discs and hard discs.

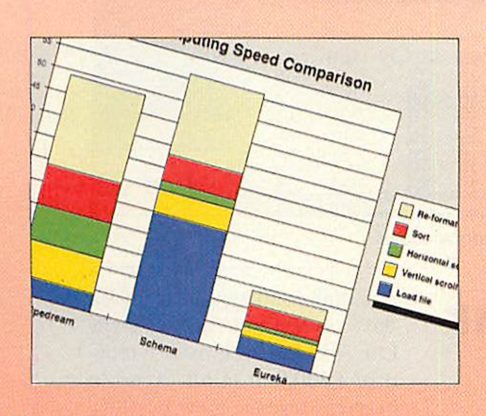
This comes as a real help to those who need to output *Impression* files to a Mac to be typeset. Price should be around £100, with the launch date Easter 1994. Contact CC on (0442) 63933.

• Also from CC is a package containing the Panasonic DRM-604X six-disc CD-Rom player, complete with Risc OS drivers. The DRM-604X can take six CDs in a special autochanger cartridge, and is a quad-speed PhotoCD-compatible drive to boot.

The package is suitable for any Archimedes with a suitable SCSI card fitted (with CDFS 2.2 or later), and costs £999 + VAT.

THE AWARD-WINNING

ΣUREKA!

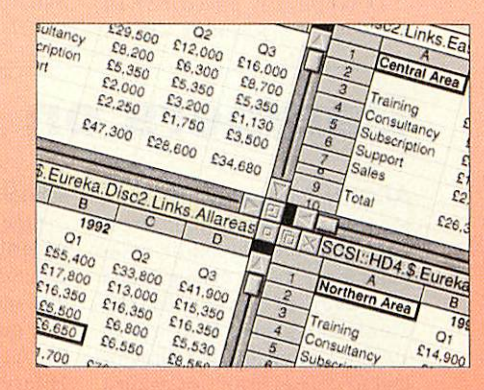


"Eureka will immediately become my first choice of spreadsheet: it will be a tool I use everyday."

Graham Bell, Acorn User

"Eureka has the edge for speed over its rivals"

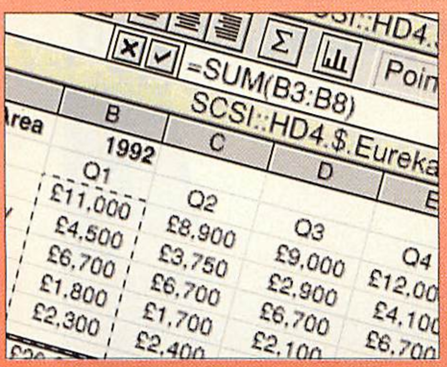
Clem Vogler, Acorn Computing

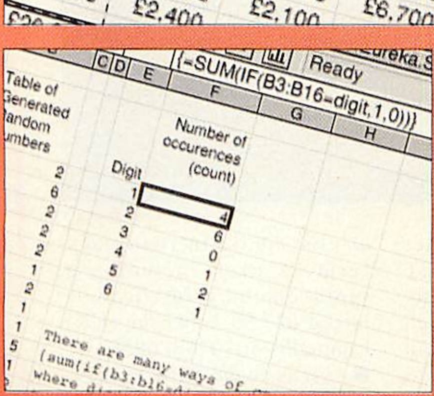


"Eureka does for numbers what Impression does for words. A highly polished and powerful spreadsheet"

James Hope, Computer Shopper

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Export both worksheets and charts as draw files.

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Worksheet effects style editor.

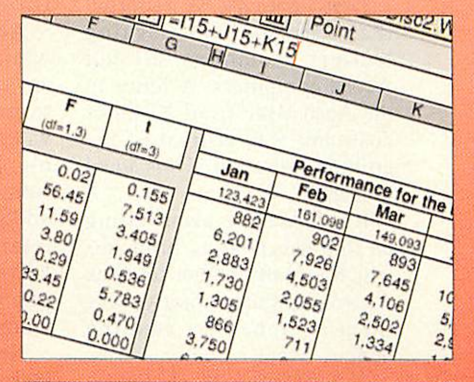
Point and click formula construction.

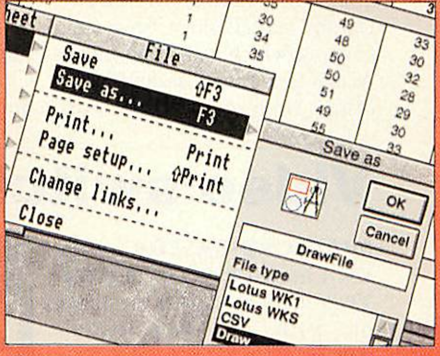
Intersheet linking, for consolidated 3-D models.

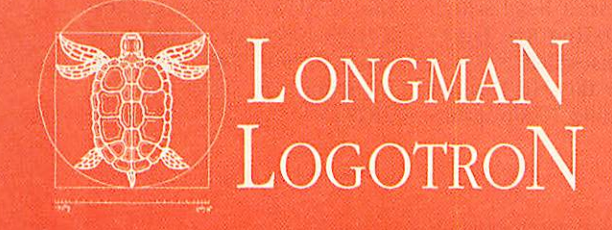
Over 4 million cells per worksheet.

SimpleSum for first time users.

Setting new standards of performance, useability and value for all RISC OS users.







Eureka — £119 for Single User version
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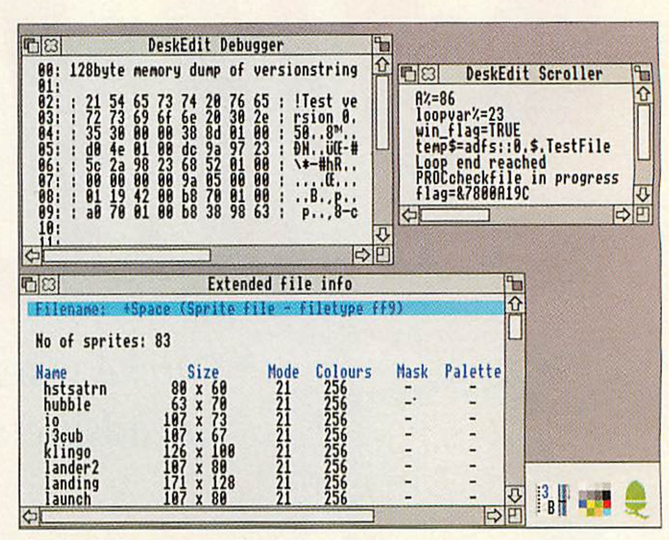
124 Cambridge Science Park, Milton Road, Cambridge CB4 4ZS
Tel: (0223) 425558 Fax: (0223) 425349

NEW DESKEDIT

THE latest incarnation of Risc Developments' popular program editor, *DeskEdit*, has arrived. A selection of new *DeskEdit 3* features include a 20-entry desktop de-bugging window for use with Basic or C, independently scrolling windows, up to 20 invisible markers, revised hot-key shortcuts, a new function locator, auto-indents for Basic, extended file information, file import filter and revised C syntax checker.

DeskEdit 3 is priced £27.19 + VAT. Upgrades from *DeskEdit 1* cost £8.47 + VAT and from *DeskEdit 2*, £5.00 + VAT. For more information contact Risc Developments on (0727) 840303.

• Meanwhile Beebug Ltd has announced a Christmas Special Offer: A5000 Learning Curve packs for just £850 + VAT. The A5000s are the old 25MHz variety (A5000s now have 33MHz Arm3s), and do not come with monitors. To order, call Beebug's new telesales hotline on (0727) 840305, or for information call (0727) 840303.



The new Debugger and File Info windows

Dampers on Dixons

ACORN fans hoping to see a renaissance in the high street interest of their favourite computer have been disappointed and even dismayed by the electrical giant, Dixons. In 1992 a Dixons buying director had to defend criticism against his company about the small amount of support given to Acorn products, and promised greater opportunities for 1993.

Last February we reported that Dixons was issuing leaflets promoting all but Acorn computers. A letter in the April issue from a Dixons customer was critical of the attitude he found at his local branch.

Readers have been telling us that the Dixons branches which actually bother to stock Acorn computers rarely have them switched on running demos. More recently, we've heard of reports that new Dixons leaflets have been circulating which fail to promote Acorn computers as anything other than computers for schools.

One recipient of the leaflet wondered why it was that Dixons appear to be intentionally trying not to sell Acorns. We put some of these points to Acorn's press contact, Hilary Bassant. The guarded reply was that Acorn was fully aware of the situation and accepted that the current marketing relationship with Dixons could be better.

Acorn's attitude is that while existing arrangements are unsatisfactory, it intends to preserve its relationship with Dixons as far as is possible so as not to jeopardize future co-operation. Bassant added that deals with other retail outlets, like the John Lewis Partnership, for example, were proving to be much more successful.

Nevertheless, the general lack of support from Dixons must be seen as a disappointing handicap to Acorn's Christmas push. Hopefully, things will be better next year.

Half year results

ACORN'S half year results remained in the black, but despite an 11% growth in revenues to £23.6M, retained profits were down from £511,000 to £305,000. Operating profit fell from last year's £749,000 to £267,000.

Acorn benefited from an £86,000 contribution from its 46% owned subsidiary, Arm Ltd. Arm Ltd itself made a profit of £200,000 in all. Acorn's overseas revenue grew by 18%, though from a small base but will remain a high priority.

Sam Wauchope, Acorn's managing director, stated that the company can look forward to the future with confidence and pointed out that despite the continuing industry turbulence Acorn has maintained profitable growth.

Seikosha SpeedJET 200



SEIKOSHA'S latest ink-jet printer is the £235 SpeedJET 200, which looks remarkably like the Olivetti JP150 which is badged by Acorn. The main difference between the old 100 model and the new 200 is a long-life print head which can be re-filled six times before it is discarded.

Refills for this HP DeskJet Plus-compatible 300dpi printer cost £8.00 in twin-pack form. A pack including a replacement print head is priced £27.50. Seikosha (UK) Limited is on (0753) 685873.

● Mannesmann Tally has also launched a JP150 clone called the T7018. MT says the T7018 has a street price of about £179 + VAT. For more information, ring (0604) 232223

Video switch Calibre

BRADFORD-BASED Calibre UK Limited has introduced a VGA monitor switch compatible with 'new-generation' Acorn computers like the A3010, A3020, A4000 and A5000. The switching unit can connect a computer to one or two remote VGA monitors up to 100 metres away. Obvious customers include schools and training businesses. Calibre is on (0274) 394125.



Sibelius 7
expert system

...is simply the world's best music processor.

But don't just take our word for it. *Sibelius 7* is used by some of the world's top composers and music publishers (e.g. Peters Edition, Faber Music, Chester Music). Major works already produced using *Sibelius 7* include John Tavener: *We Shall See Him As He Is* (on Chandos CD 9128, BBC Welsh Symphony Orchestra cond. Richard Hickox), Geoffrey Burgon: *The Chronicles of Narnia* (BBC TV series), Peter Maxwell Davies: *Threnody* (recently released on CD), George Benjamin: *Antara* (the subject of a BBC1 Omnibus documentary, and now available on Nimbus Records CD NI5167).

"Clearly this is by far the best music processing program in the world"
Chris Hinkins (music engraver, twice winner of the Royal Society of Arts' Radcliffe Awards for graphic excellence)

"...the most important music software achievement of 1993"
Times Educational Supplement (5.11.1993)

"I have been astounded by the versatility and elegance of this system"
George Benjamin (Award-winning composer)

In addition to the numerous features of *Sibelius 6*, the *Sibelius 7* expert system gives you:

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- ...even a *24-hour* technical support hotline!

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- Based on the *Sibelius 7* expert system, acclaimed as the world's best music processing program
- Astonishingly fast WYSIWYG graphics – full screen redraw takes typically *0.1 seconds*
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Sibelius 6: £160+VAT (discounts for users of Rhapsody & PMS)

Sibelius 7: £424.68+VAT with this discount voucher – but hurry! Offer ends Dec 31

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You can also enter our **special prize draw** to win a free copy of *Sibelius 7*.

Alternatively, just phone Sibelius Software on 0223 302765.

Sibelius Software

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Auckland Rd,
Cambridge CB5 8DR
Tel: 0223 302765



Graphics cards galore

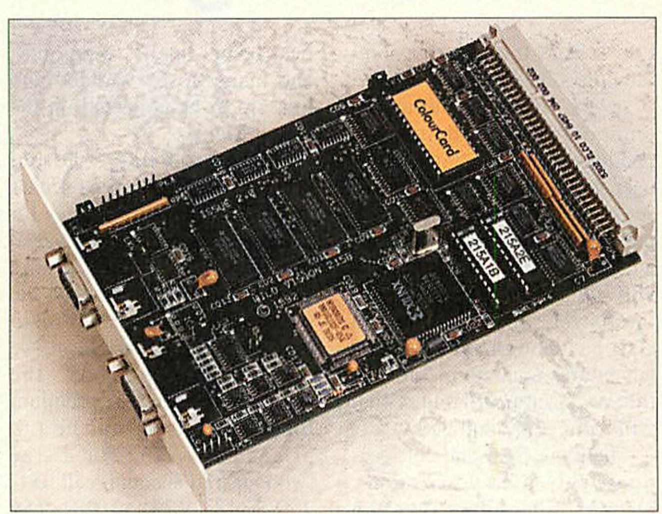
THE Acorn World show saw the launch of two new graphics upgrades for the Arc. With them both Computer Concepts (with Wild Vision) and State Machine have broken new ground in the quality of Acorn desktop display capabilities.

The ColourCard Gold (from Computer Concepts and Wild Vision) has been developed in conjunction with Acorn and features support for 15 bit-per-pixel (32,000 colour) screen modes. By patching the existing Acorn display modules, this card has opened the way for 'true colour' applications (which store their colour data as 24-bit data or 16.7 million colours) to be displayed in nearly their full glory.

This advance marks a distinct but long overdue move towards those mammoth SVGA and XGA displays, which have been available for years on the Mac and PC. All vector graphics applications, like *Artworks* and *Draw* will benefit, as will Acorn Replay movies stored in 16-bit format.

No painting packages, however, will see the difference as none on the market have been developed with more than a 256-colour palette or true-colour display capabilities.

Clares has said that future versions of *ProArtisan 2*, the only bitmap editor to carry 24-bit colour information, may well include extended palettes offering 32,000 to 16m colours to see and choose from.



The Colour Card Gold

State Machine's innovative new upgrade, the ClusterCard, looks likely to keep at least one member of present generation Acorn machines on par with future Acorns in terms of graphics. The ClusterCard slots straight into the Memc socket of 33MHz A5000s (those with 25MHz Arm3 processors must be upgraded first) and offers, not only housing for a graphics accelerator upgrade, also up to 8Mb of additional Ram.

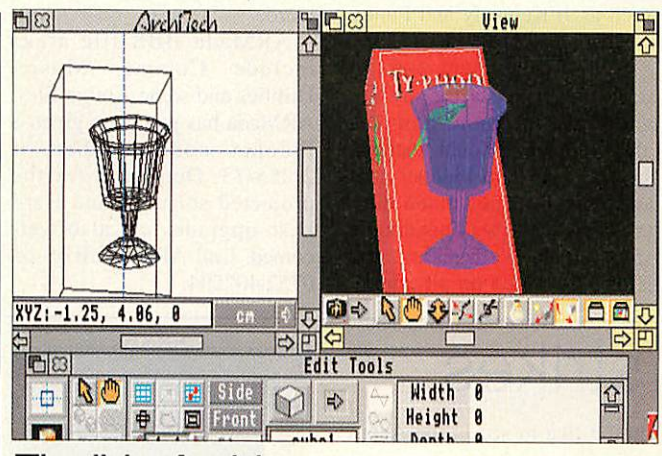
The graphics enhancer comes in two guises, both of which are revolutionary as they tear through the 480K Risc OS screen size buffer and, like the ColourCard Gold, the 256-colour barrier as well. 480K allows only 800x600 in 16 colours (and in 256 colours with current graphics cards) but State Machine's cards will offer 1Mb modes for £399 + VAT and 2Mb modes setting you back a further £80.

For the 2Mb device, what this will mean is modes of 1600x1200 in 256 colours and 950x710 in 16.7m colours. State Machine claims that even these enormous screen modes will be ultra fast.

3D0 Games console

THE Arm Ltd stand saw the display of the Apple Newton and also Panasonic's 3D0 games console. Surrounded by a densely packed hoard of excited kids, the 3D0 was demonstrating its Nintendo-beating CD graphics and sound capabilities driven by an Arm60 processor and a number of specialised graphics chips.

Thousands of colours, and super-fast, smooth graphics were more than evident in the Lotus Turbo style game on show. Think it's time to skip your MegaDrives, folks.



Flexible Architect

PRE-RELEASE code for the modelling program Architech could be seen at the ExpLAN stand, featuring what could be described as a powerful 3D Draw editor, sprite mapping, automated animation, fast perspectivised previewing and much more.

The program looked flexible and by no means sluggish, even in its present state. Look out for the full-release review of this rather specialised application in the near future.

In brief

New Artworks

24-bit sprite handling and fast loading are the two main additions to the latest – and most comprehensively debugged – version of *Artworks*. Version 1.5 has a TIFF and JPEG filter allowing industry standard bitmap image files to be loaded directly.

The translation software uses an algorithm called aero-dithering which, even in 16-colour modes, represents the 24-bit colour sprites with remarkable depth and colour accuracy.

This same image handling system has also been implemented into *Impression Style*, and will also be in *Publisher*, making documentation to be printed with true colour images very well depicted within the desktop.

Using the new ColourCard Gold, 24-bit sprites in the new 32,000 colour modes take on a photorealistic character, so what you see is near-perfectly what you get.

HCCS price breakthrough

HCCS has dramatically reduced the price of its Mono Vision digitiser for a limited period. Until January the mono version costs just £39 + VAT, after which the price reverts to £59 + VAT. Considering the quality of the digitiser, this is a very aggressive price cut indeed. Upgrades to the Colour Vision and Colour HiVision digitisers are available, for £99 and £149 respectively, and the mono version is being distributed through Sonamara on (0635) 299676, fax: (0635) 297483.

Video cards deluxe

For the meagre sum of £3,975, one of the all new Apex Imager video cards could be yours. It has been developed solely for professional use by Millipede Electronic Graphics, who have developed hardware used by the BBC for real-time video effects. The card includes 16Mbytes of Ram, an onboard Arm3 and FPA, and four custom designed chips, all in one double-width podule. The card offers 32-bit colour image generation and manipulation at PAL (768x575) and NTSC (640x480) resolutions.

You can contact the Graphics Page by writing to me, Jack Kreindler, at The Graphics Page, *Acorn User*, Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP.



Busy Silicon Village

BILLED as the ultimate adventure game, Avatar forms part of the Silicon Village Leisure and Computing Viewdata Service. Silicon Village is the extensive and friendly nationwide electronic community that owes its existence to the death of Micronet and the enthusiasm of Avatar game creator 'Mayor' Vic Curshen.

More than a just a bulletin board, it's a complete entertainment environment, with interest areas to suit every caller, from magazine areas, meeting places and live chatlines, travel agent and art gallery to church services, computer interest areas, bawdy house, citizens advice bureau and Leisure Centre, where you'll find the popular role-playing game Avatar.

Avatar, meaning the mortal embodiment of a deity, is a challenging but friendly multi-user game played in real time, set in the land of Lomah. Your persona of a juvenile god interacts, in concert or in conflict with other real players against the powers of evil while you strive through quests and adventures to attain maturity in the six Avatar attributes that will form your adult god.

There are thousands of locations with vivid descriptions, puzzles, characters that can help or hinder your progress, other real users you can chat to, join forces with or ask advice from, but not always best taken, spells, weaponry, and magic to be wielded and treasure to be collected on the way to Deity.

The new Village Direct scheme offers unlimited access hours with no time charges for a £20 joining fee and £10 monthly subscription, giving up to 50per cent saving on the previous normal rates for regular direct-dialling users.

On Village Direct the Avatar game gateway premium time charge is 2p/minute (all prices ex VAT). For a free twohour trial account, call 081-759 2348 (V23) or 081-759 6996 and (0734) 819000 (all speeds 7E1) and key account 4444444444 and password 4444.

The English ARMada

ARMada BBS is run by Daniel Aston in Plymouth on an A4000. The system currently runs *RISCbbs* by Carl Declerk, but Daniel is hoping shortly to convert to the latest contender in Acorn 32-bit bulletin board software, *Archiboard*, written by Keith Marlow.



I'll be taking a closer look at *Archiboard* BBS software in the coming months to find out how it compares with other BBS software packages.

ARMada caters for all speeds up to v32bis (14,400bps) and has a wide selection of message subject areas, both local and the Acorn Interest Echomail areas, including some unusual ones such as JFKennedy and Funny Farm!

Daniel encourages users to register by giving name, address and phone number, after which additional features, such as access to Fidonet mail and improved download quotas, are available. This simple step is well worth taking, and is usually found on all quality BBS systems.

I have found that new bulletin board users are often reluctant to give their personal details in this way. My feeling is that those that complain would I'm sure, not relish having complete strangers walking into their own houses, rifling through their bookshelves and then leaving without a word.

ARMada BBS file areas include Comms, Music, Utilities and some Amiga files. ARMada has just been given a Fidonet node number of 2:255/73. Donations for the projected software and Hard Disc upgrades are also welcomed. Call ARMada BBS on 0752 407594.

The Cobra strikes

COBRA BBS is another PC based system hoping to attract Acorn computer users in the North Midlands – it is located in Ranskill, near Retford, Nottinghamshire. The Acorn section is run by Michael Cowgill, who invites Acorn users to call the BBS to see what's on offer at the moment, and to tell him what else they'd like to see in the Acorn area.

Cobra's message areas cover PC, Atari and Amiga machines as well as the recent Acorn connection, and has over 90 file areas. Apart from some dubious spellings in the menus, Cobra looks good. Give it a try on (0777) 816405 2400-14400bps 24 hours. Line noise local to the BBS made my call at V32bis fail, so if you're able, call at V32 8N1 (9600bps).



In brief

Stess stopper

Latest prices of USR Modems on the BBS Sysop-only scheme, operated by Hawkastle Ltd of Staines, look very good value. The Dual Standard Courier 16k8 HST/V32bis/Fax is down to £300 + Delivery + VAT, and the Courier V32Bis/FAX costs £275 + Delivery + VAT. Add 3% for credit card purchases.

Hawkastle is also to introduce a teleworking of hardware and software, allowing VDU and PC (and soon Acorn 32bit) operators to avoid the stress of commuting by working from home as a telecottage. For more information, call Gerald Janes at Hawkcastle Ltd., Unit 18, Staines Central Trading Estate Staines, Middlesex TW18 4XE tel. (0784) 449991.

African echo

AECI BBS in Johannesburg, South Africa, has started echoing Acorn conferences from Internet. Sysop Mark Symons says that AECI is the only BBS in SA doing this and would like to get as many Acorn users in the area as possible involved in comms. AECI is on (011) 608 1516.

Competition

The West Country gains another BBS based in Plymouth called Fast-Net. Sysop Graeme Read is running the BBS on an A4000 at times between 21:00 and 07:00 at speeds from 300-2400bps. Fast-Net's features include a regular competition where you can win free registration to 'Excelsior' PD library. The BBS has been allocated FidoNet node number 2:255/75.0. Call Fast-Net on 0752 402696 8N1.

You can contact me by writing to: David Dade, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP or by Email to: DaviD@arcade.demon.co.uk, or by modem on Arcade BBS, User #2, 081-654 2212 or 081-655 4412.



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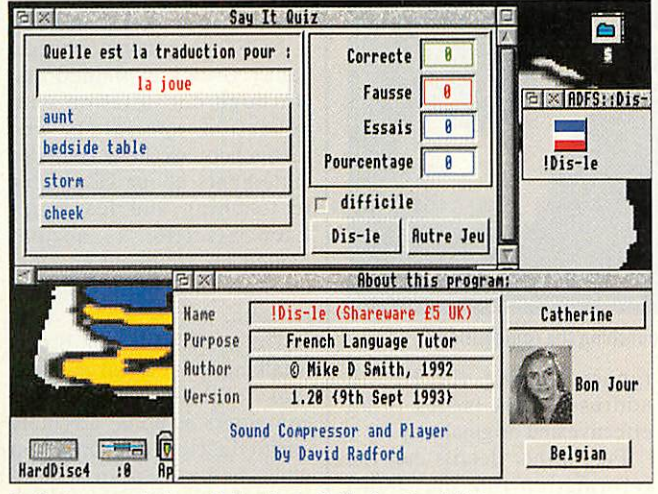
Dis le - Say it

SEVERAL PD or shareware language tutors have appeared on the scene over the last few months, but none as impressive as Mike Smith's *Say it* shareware collection. Mike has invested heavily in the production of sampled French, German and Spanish vocabularies, which form the basis of his programs.

The French version which I've got takes the form of a desktop question and answer program. By playing a sampled French word, and asking you to select the correct English equivalent from a short list of alternatives, a mini-dictionary of about 400 words can be learnt.

Unfortunately, disc access is necessary before each sample is played, but the use of a hard or Ram disc alleviates this problem. The registered program comes complete with a site licence, and so is ideal for use in schools.

Although the program tests only a fairly small vocabulary, *Dis-le* is still an excellent language tutor for the beginner. Hopefully, if Mike receives sufficient demand for the program he will go on to produce further stages or upgrades for the tutor. *Dis-le* is shareware and can be obtained for £5 (per language) from: Mike Smith, 26 Grenville Road, Saint Judes, Plymouth, PL4 9PY.



Perfect pronunciation, all thanks to Catherine the Belgian

Free lunch

MEditate is the freeware version of the software used to create the Lunchtime disc magazine, and has been produced by Andy Bennett and the Lunchtime editor Neil Davies.

The aim of the package was to allow people without any programming knowledge to set up disc magazines so authors can concentrate on the magazine content, rather than the technicalities of the programming.

It is a complete designer system that fulfils this aim with some success, although it still remains quite a complex undertaking if all the features of the software are used.

However an example 'magazine' created with the program details the processes involved and describes each part of the editor.

All in all a good program, which should increase the number of disc magazines on the scene. *MEditate* is available from the Datafile on disc Ut 104.

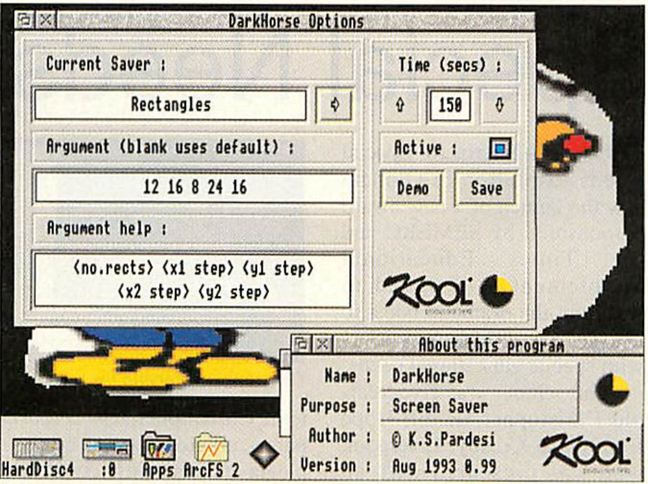
Easy rider

CHECK out the new *Darkhorse* screen saver by Kuldip Pardesi, which features 13 different machine code effects, most of which are very good. The screen saver is fully Risc OS 2/3 compatible and uses only 32K of workspace.

The desktop interface allows the different fx to be chosen and modified by altering various control arguments, so the savers can be tailored to your exact requirements.

Kuldip is continually developing the program and adding extra fx which are available on separate discs (these will only work with a registered version of the saver program).

Darkhorse is shareware, and a fully registered version can be obtained by sending £9 to: K S Pardesi (Kool), 50 Selbourne Road, Ilford, Essex, IG1 3AJ.



Save your screen with Dark Horse

In brief

Crunch

Data compression has become a vital part of of computer usage, and many techniques are available for squashing images, music and entire programs, but until now there has been no way of compressing machine code data effectively.

Bernard Jungen's new *Crunch* utility fills this gap perfectly by allowing Absolute files to be crunched down to small stand alone files, which can be executed exactly like the original. Compared to *ArcFS*, compression is both faster and more efficient. Crunch is freeware, and can be obtained from HENSA code b102.

Zap

Version 1.00 of the popular PD desktop editor will be available by the time you read this. Probable improvements will take the form of several bug fixes and additions to the C editing modes. More details next issue.

PD Library of the month

This month we take a look at another major PD library, the Datastream. In 1992 the library was taken over by Phill Coleman and Andy Locker, and has since undergone a large scale revamp and expansion.

The current catalogue is based around the Magpie system, and provides plenty of info about the PD discs it describes. As well as PD, the library also stocks a range of budget software, and many special offer packs.

The catalogue costs £1 and is available from: 34 Norbeck Close, Great Sankey, Warrington, Cheshire, WA5 2SX.

Another Dawn

ISSUE 3 of the New Dawn disc magazine is available, and it looks good. It combines the usual inane (insane?) bunch of articles with some interesting software (such as a complete vertical scrolling shoot-'em-up), and is completely freeware. Worth a look.

Write to me, Paul Wheatley, with PD news or programs to review, at Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP.



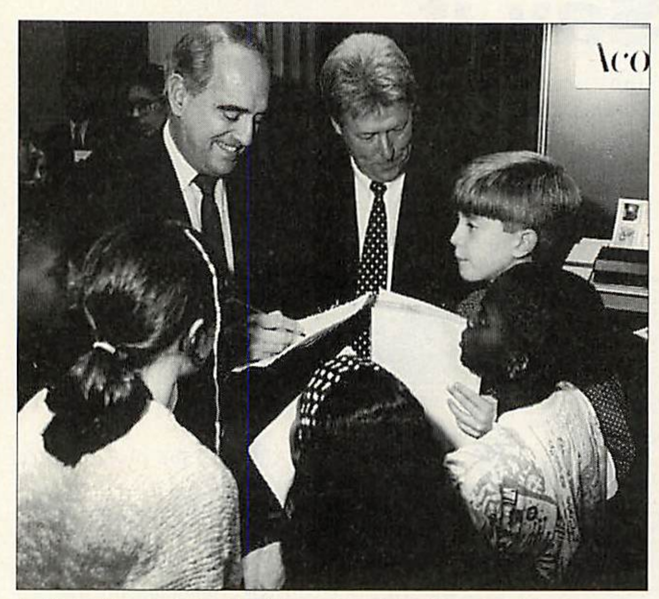
Healthy message

THE Department of Health has launched a competition for students to produce video storyboards illustrating the dangers of drugs, drink and cigarettes, with Acorn computers as the prizes.

The initiative, called 'Acting for Health – drugs, smoking and alcohol misuse', hopes to encourage pupils to think about getting the consequences of substance abuse across to others. Thousands of entries are anticipated and a hundred shortlisted schools will be invited to send their teams on a film-making weekend at a Superchoice Active IT Centre. There they will learn how Acorn machines, including CD-Rom technology, can be used to assist the film-making process. Three ultimate winners in each of four categories will win the Acorn equipment.

Explaining his company's involvement in the campaign, Acorn MD Sam Wauchope said: 'Schools today recognise that drugs, alcohol and smoking present a growing problem among young people, a problem we cannot afford to ignore. Acting for Health addresses this issues in an effective and original way.'

For further details call the information line on (0800) 592310.



Health Minister Dr Brian Mawhinney launching the competition

Proof that IT works

THE National Council for Educational Technology (NCET) is to publish a document which sets out to prove that computers are fun and motivate people to learn. *IT Works* is aimed at heads, teachers, governors and parents.

NCET programme manager Jenny Brown explained that 'through consultation with education specialists and researchers, we have compiled statements about IT's value to teaching and learning.' Each assertion is accompanied by argument and discussion and supported by research.

The sort of statement Brown is talking about is, for instance, that children who have computers at home are more enthusiastic and confident when using them in school, although girls are 13 times less likely to have a machine at home.

Another example cited in *IT Works* is that one of the benefits of computers is that can they make difficult ideas more understandable, particularly if multimedia is used.

They also enable 'What if...?' questions to be asked, giving individuals the power to try out different ideas, to take risks and to make mistakes. This means that scientific research strategies become second nature to young people.

To order a free copy of *IT Works*, contact Penny Barrington on (0203) 847061.

Research database

THE Centre for Interactive Video in Education at Sheffield Hallam University has, in conjunction with the Employment Department, produced a database and specialist document collection of international research on the application of interactive technology to learning.

The main section of the database offers approximately 700 entries about articles, reports and papers covering summative evaluations published since 1985. The document collection is housed at the centre and contains over 400 titles.

The collection is open to all and copies of the database are free. It runs under DOS but Acorn owners can, of course, access it via the PC Emulator.

To get your copy, write to Alison Hudson, Sheffield Hallam University, The Centre for Interactive Video, The Library, Collegiate Crescent Campus, Sheffield S10 2BP.

Fun and games

HS SOFTWARE has released *Lots More Fun and Games*, another three-disc compilation of maths and English games aimed at five to nine-year-olds.

In *Gwyn's World* children must find 2D and 3D colour shapes, hidden around Gwyn's house in some rather cunning places. *Dataday* helps them to learn the days of the week and the months of the year, aided by bright graphics and mnemonics. *Spot the Blot* is about discovering 'blots' or objects which have been reversed, are upside down or are missing. This develops visual perception skills, including left/right discrimination.

Lots More Fun and Games has animations digitised from live video and makes extensive use of sampled speech. It costs £22.95 (including VAT) and is available from HS Software on (0792) 204519.

Special Needs award

THIS year's Micros for Special Needs exhibition in Oldham saw the launch of a new award – sponsored by SEMERC and the Times Educational Supplement – designed to highlight the dramatic boost to learning that IT can offer users with special educational needs.

The winner was five-year-old Christopher Hamill-Hope from Great Crosby, Liverpool, who was presented with an A4000S plug-in-and-go system. Christopher has cerebral palsy, athetoid/ataxia quadriplegia and very little controlled voluntary movement.



Christopher receiving his prize

Software companies producing resources for special needs users were also rewarded at the Oldham exhibition. Winners were TAG Software, for its Mapper range; the Advisory Unit for Windows Switch and Windows Concept; Brilliant Computing for Face Paint; the Concept Keyboard Company for Concept Universal; and Second Source, distributor of the Franklin Speaking Languagemaster.

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0146e	A3010 4Mbyte RAM	RISC Dev	129.00
0145c	A3020/A4000/A4 2Mb RAM	RISC Dev	89.00
0125e	A310 4Mb RAM	RISC Dev	269.00
0768c	A310 4way B'Plane + Fan	Ifel	52.00
5850d	A4 2Mb RAM for FD System	Acorn	105.00
0278c	A400/1 Series 1Mb RAM	RISC Dev	27.00
0141e	A410/1 8Mb RAM Card	RISC Dev	419.00
0142e	A420/1 8Mb RAM Card	RISC Dev	399.00
0143e	A440 & A440/1 8Mb RAM	RISC Dev	369.00
0147e	A5000 2->8Mbyte RAM	RISC Dev	399.00
0124c	A5000 2Mb RAM	RISC Dev	99.00
0148e	A5000 4->8Mbyte RAM	RISC Dev	349.00
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0271c	I/O Podule - Arch	Acorn	79.95
4614b	Joystick Adaptor	RISC Dev	17.95
5809g	Lark (Sound Sampler)	Wild Vis	195.00
0236c	MEMC1A Upgrade Kit	RISC Dev	25.00
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5870g	PC386 1Mb For A3020/4000	Acorn	225.00
5845g	PC386 4Mb Card For Arch	Aleph One	489.00
5846g	PC486 1Mb Card For Arch	Aleph One	479.00
5847g	PC486 4Mb Card For Arch	Aleph One	579.00
5871g	PC486 4Mb For A3020/4000	Acorn	420.00
5874c	Printer/SCSI Interface	Atomwide	75.00
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0503g	Phillips Green Monitor	Phillips	87.00
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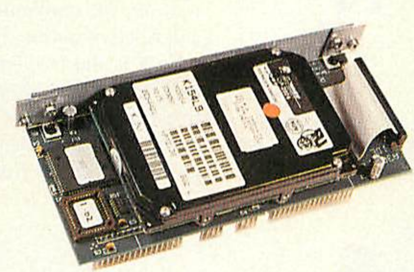
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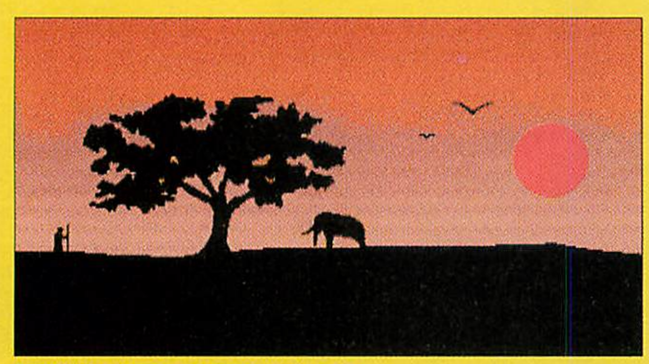
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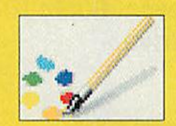
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THE ACORN USER



Beautiful pictures, all created with Artist

Artist

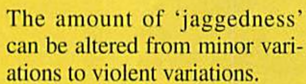


By R A Swetman

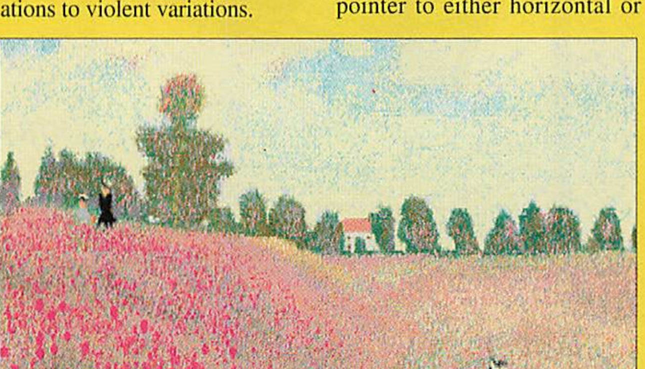
Artist is a complete 256-colour art package, which has been tried and tested on children and adults alike. As you can see from the pictures on this page, stunning results are available if you have the inspiration.

As well as sophisticated colour selection and dithering, there are twelve powerful tools to enable you to get the effect you want.

• **Jagg** gives a jagged 'curve' between any two points, which is useful for drawing maps, trees, mountains and so on.



The amount of 'jaggedness' can be altered from minor variations to violent variations.



• **Parallelogram** draws a parallelogram, filled or unfilled. You can also copy parallelograms around easily.

• **Ellipse** draws an ellipse, again filled or unfilled. You can also easily draw concentric ellipses, to create a feeling of depth in a round object, like a sphere.

• **Arc** enables smooth curves, open or closed, to be drawn through various points, a little like in Draw. The thickness of the line drawn can be easily changed as well.

• **Circle** draws circles in a similar way to the ellipse tool, with options for concentric circles, and filled or outlined objects.

• **Free** is the freehand drawing tool, which enables you to draw free-flowing lines of any thickness. You can constrain the pointer to either horizontal or vertical directions, and you can also use this tool as an eraser, with a circle displayed round the pointer for clarity.

• **Line** draws straight lines in segments.

• **Fill** fills closed areas with the current colour; this operation can be undone if it causes a complete disaster.

• **Rectangle** draws filled or unfilled rectangles, which can be rotated before being drawn, and if need be the angle can be set up exactly from a set of defaults. However, the most useful aspect of the rectangle tool is the ability to copy areas of the screen into sprites, which can then be rotated and scaled, and pasted back into the picture.

• **Air spray** implements a spray gun, which can have the density and the radius of the spray changed at will. You can also spray with coarse circular dots, or angular shape.

• **Colour box** picks up the colour under the pointer, so you don't have to guess for perfect colour matches.

In *Artist*, all the colours and tools are shown at the bottom of the screen, so you don't have to go through complicated menus to do things. There is also a comprehensive built-in help system, as well as a complete instruction file detailing how to use all the key shortcuts available.

Figure It



By Martin Goldberg

This mathematical game is aimed to give an insight into different sorts of number series. It explores Prime numbers, Fibonacci Series, Square numbers, Triangle numbers and multiples of any number up to 100. All this information can be seen graphically on a number grid, the size of which can be defined by the user. It is aimed at Key Stages 2, 3 and 4, Attainment Target 5 (Number).

It gives factual information on any individual number, including all of the above plus the prime factors of the number, whether it is odd or even and whether it is perfect. All of these terms are explained within the program.

To encourage children with multiplication tables and understanding the concept of factors and multiples there is a game of 'connect 4' that is played on a 10x10 grid. Maths needn't be boring after all.

Learning about number series with Figure It

COVER DISC

Finite Element Materials Simulator

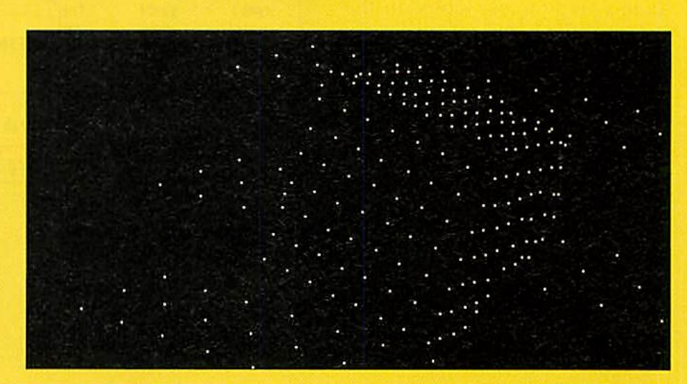


By Michael Attenborough

If you want to simulate your world on screen, then look no further than *FEMS*. Described in the article on page 72, this very powerful and highly entertaining application takes a script file, which describes the scene to be generated, and creates an animation of what would happen in the real world.

On the disc are thirteen example scripts for you to experiment with, along with a complete description of the script language, so you can invent your own animations.

As the animations are made up of dots and lines, they are very smooth and create a genuine sense of realism. When generating a scene, *FEMS* keeps you totally up to date with progress, and you can even view part of an animation part of the way through generation. Guaranteed to keep you amused for hours.



Easy Keys

By Richard Amy



EasyKeys provides five on-screen keyboards which allow you to enter characters using the mouse. The advantages of this method of entry are obvious for children who do not know their way round a standard QWERTY keyboard, but the extended character keyboard and function key window are useful for any users of the machine.

There are three ASCII keyboards which can be chosen from the Options submenu in the icon bar menu. These are as follows:

Primary: This keyboard contains a basic alphabet and the number keys. In addition simple punctuation, Space, Delete, and Return are provided. The Caps key toggles between lower and upper case.

Junior: This keyboard contains alphanumerics with limited punctuation and mathematical operator characters. Cursor and editing keys are available by clicking on the window's Toggle icon.

Qwerty: A larger keyboard with alphanumerics set out in the standard keyboard layout. All other ASCII keyboard characters are available, along with the editing keys, by using the window's Toggle icon.

There are two additional non-ASCII keyboards:

Extended: A larger keyboard which gives access to the special characters with codes 128 to 255. This keyboard does not provide any other characters or functions.

Function: A larger keyboard which gives access to the function keys. This keyboard does not provide any other characters or functions.

The primary keyboard

How to use EasyKeys

When an active keyboard is on screen, a different keyboard can be called from the icon bar Options menu. Only one ASCII keyboard is allowed on screen but the Extended and Function keyboards work independently.

Press Select to operate a key. Menu has no function within the EasyKeys window. Adjust can be configured to give opposite case letters on the first three keyboards: this option is in the Options submenu. Auto-repeat action can be selected or deselected in the Options menu.

The Find menu item brings the current keyboards to the front of the desktop. Clicking on the icon bar icon has the same effect.

Use the Acorn *Help* utility for a constant display of the character code produced by each key.

Disc problems?

Cover discs are thoroughly tested at each stage of production, but with such a large batch it is possible that one or two faulty discs may slip through. If you should receive a faulty disc it will be replaced free of charge. Send it with your name and address to:

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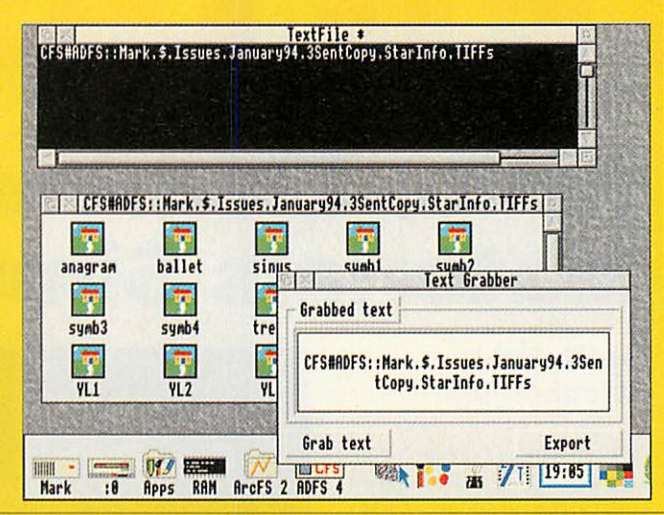


OmniDesk: Text Grabber

By Richard Hallas

Text Grabber is a very versatile utility for transferring text around the desktop. It can be used to copy text between virtually any two text areas, and there is no limit on the amount of text that can be handled.

Text Grabber can take text from two sources: icons on the desktop or text files saved into it. Saving text into Text Grabber is a simple matter of dragging a file onto its window from a Filer display, and icon text can be grabbed simply by clicking on the icon.



*INFO

Yang-Lee sets, SoundTracker conversion, string packing, one-line sillies, anagram finders, message translation, graphical demos, three-dimensional trees: they're all here, and more. See page 107.

BASICS



Learning to program in Basic couldn't be more fun. This month the FOR-NEXT loop is under the spotlight, along with Basic arrays. Interested? Turn to page 103.

National Curriculum Resources

By Geoff Preston

To accompany our parents' and teachers' guide to the National Curriculum, the cover disc contains files to help implement the exercises described. There are *Impression* files for printing pamphlets, *Logotron Logo* files for creating the design shown in the article, and a set of files for use with spreadsheets (like *Schema* or *Advance*) to create mathematical quizzes and games.

More Scribe OCR Files



By Robin Barnes

Acorn User's *Scribe* OCR program from last month has proved a real hit, so this month we're providing more predefined network files and examples, along with the complete application again. The font under scrutiny on the cover disc is Sabon, and there is an example scan along with the Network file to recognise it.

For instructions on using *Scribe*, have a look at the article in last month's *Acorn User*.

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Woodcuts

By Nigel Gatherer

This month's instalment of clip art from the pen of Nigel Gatherer consists of a set of woodcut pictures. This delightful style of illustration looks like the picture has been cut into a wooden block, which is than dipped into ink and pressed to the page.

There are all sorts of little illustrations, ranging from monkeys and talking parrots, through to a woodcut television and a ringing telephone.

ACORN USER PD SCHEME

Now you can publish your programs without losing the copyright

In case you hadn't noticed, *Acorn User* now has a cover disc, and we want to be able to fill it up with quality software, written by you. The only snag is that some people don't want to send us their programs because they think they'll lose all rights, so we've come up with the *Acorn User* PD Scheme. The scheme runs as follows:

1. You, the author, send your application to us. If it has been released previously (into the public domain, say), then the version you send must represent a significant enhancement over the earlier version (so include the earlier version too).
2. Assuming we want to publish the program, we pay an agreed sum for permission to put it on our magazine disc.
3. The application cannot be released in any form for three months after the magazine appears in the shops. After this fixed period, the copyright reverts to back the author.

Send us your programs, and you can only profit by it.

The Crystal Maze is a Chatsworth Television production for Channel 4 based on ideas by Jacques Antoine © 1990

THE CRYSTAL MAZE

The Crystal Maze is available exclusively for Acorn 32 bit computers.
AVAILABLE NOW from Sherston Software or your local Acorn supplier.

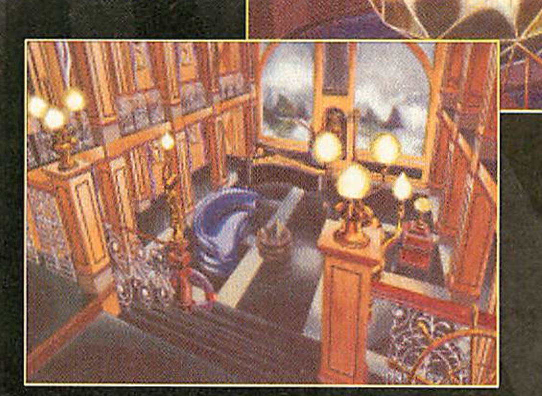
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The BJC-600 and



The brand new BJC-600 A4 plain paper printer from Canon, combined with Computer Concepts' 24-bit TurboDriver software, provides a key component in the full colour revolution that is occurring in the Acorn world.

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Requires RISC OS 3.1

Some of its key features:

- Four colour CMYK inks for the best full spectrum of colours including real black.
- Separate ink cartridges for each of the colours - saves ink and money. It's even possible to change the ink cartridge part way through a page being printed.
- Ultra fast drying inks designed specially to prevent ink spread on plain paper - no other colour ink-jet printer can even come close to the quality obtainable from this printer.
- 360 dpi provides 40% more dots per square inch than 300 dpi printers - visibly better resolution.
- The high quality of print on plain paper means lower running costs than other colour inkjet printers.

The package comes bundled with the latest colour TurboDriver software (and printer cable). This provides the fastest possible print times and full control over half-tones. The software includes advanced grey component replacements and black generation algorithms to ensure accurate colour reproduction and good greyscales - it also avoids 'black flooding' that can occur with other printers.



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The Teacher's Guide to the National Curriculum

Implementing IT under the National Curriculum is not an easy task, but Geoff Preston has the answers in the first of a six-part series.

The introduction of the National Curriculum has presented many problems for all subject areas. I feel very strongly that Information Technology should be delivered alongside mainstream curriculum subjects and this has lead to several additional concerns, not least of which is keeping track of which child has done what.

Given that Information Technology is best delivered as a support subject for other curriculum subjects, I had the task of planning an effective scheme which would be appropriate to the needs of our students and to fit in with existing schemes of work in other departments. A further consideration was how we were going to find the time in an already overloaded timetable.

Having giving due consideration to the aims and objectives of IT, I have developed a course which I believe is both meaningful to the students, but above all, viable. (By that I mean it's financially affordable and you don't give yourself a coronary trying to deliver it!)

Another point is that whatever the curriculum being followed, there will be some programs which could usefully contribute to most subjects, and several which are really subject-specific.

As IT time can be limited, I try to ensure that students can use the skills in as wide and diverse a way as possible. Therefore, my Information Technology delivery is based on generic software.

If a child can use a word processor, database, spreadsheet, graph drawing program and, to a lesser extent, an art package, I reckon you can cover 80 to 90% of the IT National Curriculum. Add to those a programming language like Logo, and you've probably got the tools to fulfil all of it.

If one then looks at which subjects could best use the main programs, a curriculum map can be built which will show any gaps. These can then be filled with a wide variety of software which can be tailored to meet the needs of both individual subjects and the needs of IT. Once again, the partnership approach between the IT and the supported subject is vital.

Here then, is my scheme, one developed and used by a practising classroom teacher. I must emphasise that the work I'm about to outline is the minimum for each student. Many will have their IT experience extended further by additional work within subject areas.

This scheme is by no means perfect; I am continuously evaluating and altering it. But it does work, or at least it works at Highgate Wood School. It could well require some changes to make it work in other institutions.

YEAR SEVEN

Where possible, the first classes to use IT are English classes. Each class spends two of their six 35-minute weekly English lessons in the IT rooms. This lasts for half a term and the main program in use will be a text editor.

When students come into my school, they come from a wide variety of backgrounds and will have had vastly different computing experience. Some children own their own computers, but these tend to be used almost exclusively for games. In the education authority for which I work, Apple and Acorn are the main computers in use. There are still large numbers of BBC computers around and some neighbouring boroughs use Research Machines and PCs.

To find out what each child can do, and to get everyone familiar with the keyboard and with Acorn computers, I begin with Iota's *Touchtype*. Most touch typing programs are notoriously boring and some are educationally doubtful. This one is the best I've come across.

The first lesson gets them used to the way the Acorn desktop works, loading a program, dragging files and finding menus. *Touchtype* enables me to show all of those skills, and the students to practise them. At the start of each subsequent English lesson, students spend about 10 minutes working through the exercises at their own pace. The site

licence price for *Touchtype* is £400.

The main part of the English module is word processing, and for that I use *Impression*. If ever there was a program that alone justified the existence of a computer, *Impression* is it. I feel that as the word processor is such an important tool, it makes sense to use it wherever we can and to use it in as many diverse ways as possible.

As we have such a powerful document processor available, I feel we should try and get the most out of it. I can't imagine any subject that couldn't use it, and therefore I begin by getting students familiar with it as early as possible.

The students used to produce a newspaper front page, which was a good project as it addressed several of the IT statements, and of course fitted in with the work being done by the English department.

Essentially students wrote one story in their exercise books and put some notes down about a second story. The first story was copied into the computer, while the second story was composed at the computer, thus demonstrating two quite different ways of using a word processor. Once the text was in, the page could be embellished with suitable graphics and titles.

I created the blank *Impression* document and restricted it to one page. A few students did manage to generate enough text to need a second page, but this was very much the exception.

After all, with seven weeks in a half-term, and two 35 minute lessons per week, that's a little over eight hours. Subtract about one-and-a-half hours for touch typing and the time for getting in and out of the room each week, and there's only about four hours left.

CREATING A PAMPHLET

Having done the newspaper for three years, with eight classes per year, one begins to look for alternatives. In Year 7, our English department now begins with a piece of writing which will either be 'My First *Impressions* of Highgate Wood' or 'Where I Come From'. This is the basis for the production of a pamphlet.

So often, word processing involves flat pieces of paper. Only occasionally, it seems, does it occur to us that modern document processors can do so much more. If you take a piece of A4 paper and fold it into thirds, you have an interesting size document with columns in which to write, and a space for a title.

As before, the blank document was created in *Impression* and supplied to the students as their starting point. *Pamphlet* is on the cover disc.

For the first time this year, I chose not to have the students type directly into the *Impression* pamphlet document. Instead, they now use *Edit* to prepare the text, which they then drag into the blank document.

I have found that students cannot resist the temptation of including special effects as they go along. As a result, they can lead themselves into problem after problem.

I feel it's much more sensible to enter text first and only after the text is complete should they concern themselves with the flashy bits. Because *Edit* looks so basic, they seem to accept that philosophy more readily and don't attempt to make any changes, such as centred titles.

Once the text is dragged into the pamphlet document, spell checked, proof read and corrected, I show them how to change the font style and size, how to highlight words, centring and justification. This is where I let them do more or less what they want.

Some students can demonstrate a very mature approach when selecting special effects, others use everything. It's a little like the child who gets a new paintbox – the first painting uses every colour!

The last part of the production of the pamphlet is to cre-

MATHEMATICS

Also in Year Seven, and for the same amount of time as for English, we bring in the Mathematics groups. As with English, we take on two programs: a spreadsheet and a language such as Logo.

The spreadsheet we use is *Schema* by Clares. I use *Schema* for much the same reason as I use *Impression*; it's very powerful and consequently is of use throughout the school, but its appearance is not so complicated that it's intimidating.

I spend about half the allotted time with this program – that's either three or four weeks depending on how well they do. I find (and this is a very personal view) that a spreadsheet program is the hardest one to introduce, and certainly the toughest one to hold the students' interest.

Teaching graphics, DTP and even databases is easy to keep lively. Spreadsheets for 11-year olds can be boring in the extreme, so I really have to work hard to keep up their interest. When teaching spreadsheets, I find a video/RGB projector a minimum requirement.

When they first appeared, the Epson Projector was well over £3,000, even with educational discount. I managed to buy one when they were about £1,800 and now they're little over half that. The projector shows the computer display on a screen thus enabling students to see exactly what to do and how to do it. Previously I'd have the whole class huddled around a 14in monitor.

Having introduced the concept, I then set them a simple task of creating a multiplication table. This may seem a little basic for 11-year-olds, but it does provide a familiar base from which to work. The diagram shows what each cell contains, but it displays the actual numbers, not the formulae. That seems be be the part they find hardest to grasp. Having successfully completed the multiplication table, the faster ones will go on to create a table of powers.

The second exercise I present them with is a really aimed at statements 4e, 5d and 6d. I provide a spreadsheet which has a number in cell A1 and a formula is cell B1. By altering the number in A1, the students must work out the formula.

In the diagram, cell A1 contains the number 1, whilst B1 is displaying the number 4. (It actually contains a formula which makes a calculation based on the contents of A1.) If A1 is changed to 2, B1 becomes 6. When A1 is changed to 3, B1 displays 8. What is the formula? In this case, the answer is A1*2+2. A number of graded problems of this type can be provided.

Creating a spreadsheet, entering numbers, text and formulae, saving, loading and printing, working through a number of graded problems where students have to work out a formula, should address statements: 1a, 2b, 3a, 4a, 4e, 5d, 6d and possibly 4d.

Each cell contains...

	A	B	C	D	E
1	1	2	A1*B1		A1*A1
2	A1+1	B1	A2*B2		A2*A2
3	A2+1	B1	A3*B3		A3*A3
4	A3+1	B1	A4*B4		A4*A4
5	A4+1	B1	A5*B5		A5*A5
6	A5+1	B1	A6*B6		A6*A6

but they display...

	A	B	C	D	E
1	1	2	2		1
2	2	2	4		4
3	3	2	6		9
4	4	2	8		16
5	5	2	10		25
6	6	2	12		36

A multiplication table.

If A1 contains 1, B1 shows 4.....

	A	B	C
1	1	4	
2			
3			

..but if A1 contains 2, B1 shows 6.

	A	B	C
1	2	6	
2			
3			

What is the formula hidden in B1 ?

Quizzes using spreadsheets.

ate a graphic for the front cover. For this I use *Fontasy* from Ian Copestake Software, or *FontFX* from The Datastore. If anyone asks why I use Acorn computers, I show them *Fontasy* and then ask them where they could buy a similar program for another computer at only £15.

Fontasy enables all students, regardless of ability, to create a quality graphic for the front of their pamphlet and in so doing, cover several additional statements.

Creating the text, saving and loading, moving it into the blank document, checking, correcting, creating text effects, creating a graphic and moving that into the document, saving, loading and printing, should address statements: 1a, 2a, 2b, 3a, 4a and 5a. It should be noted that this list of statements does not include those of the subject being studied.

It's also worth pointing out at this stage that just because a class has been subjected to these statements, it does not necessarily follow that they have all actually achieved the statement. Further, I feel that each student should qualify for each statement at least twice, just in case the first time was a fluke!

LOGO

The second part of the Mathematics module is Logo. This is really a very brief introduction to the language, and we only cover the graphics part of it. But in three weeks it is possible to introduce it, showing some of the major commands, including FORWARD, LEFT, RIGHT and REPEAT.

I set the pupils exercises such as drawing a number of polygons and halfway though the course I show them how to create a procedure. For this I use a Roman Key pattern.

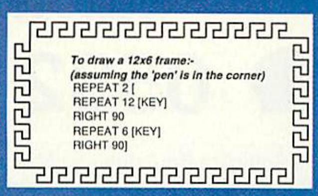
I use the simplest interpretation of a key, but several of the students will create more complex designs. Having created a procedure called *key*, students can then use that to create a frame of keys. Creating a program, testing it, evaluating it, correcting it, saving, loading and printing it should address : 1a, 1b, 2b, 3b, 4b and 5b

In addition to these exercises, students write about their IT experience and as a result could qualify for 3d, 4f and 6e. If they can word process their experience, and include some graphics captured from their work, they could satisfy even more statements.

This estimation of statements addressed is based on the assumption that backup teaching is carried out in the subject area. Additional work could include using Logo to control a buggy, in which case some sensing could also be carried out.

To define one key:-

```
TO KEY
FORWARD 16
RIGHT 90
FORWARD 16
RIGHT 90
FORWARD 8
RIGHT 90
FORWARD 8
LEFT 90
FORWARD 8
LEFT 90
FORWARD 16
LEFT 90
END
```



To draw a 12x6 frame:-
(assuming the 'pen' is in the corner)

```
REPEAT 2 [
REPEAT 12 [KEY]
RIGHT 90
REPEAT 6 [KEY]
RIGHT 90]
```

CO-OPERATION

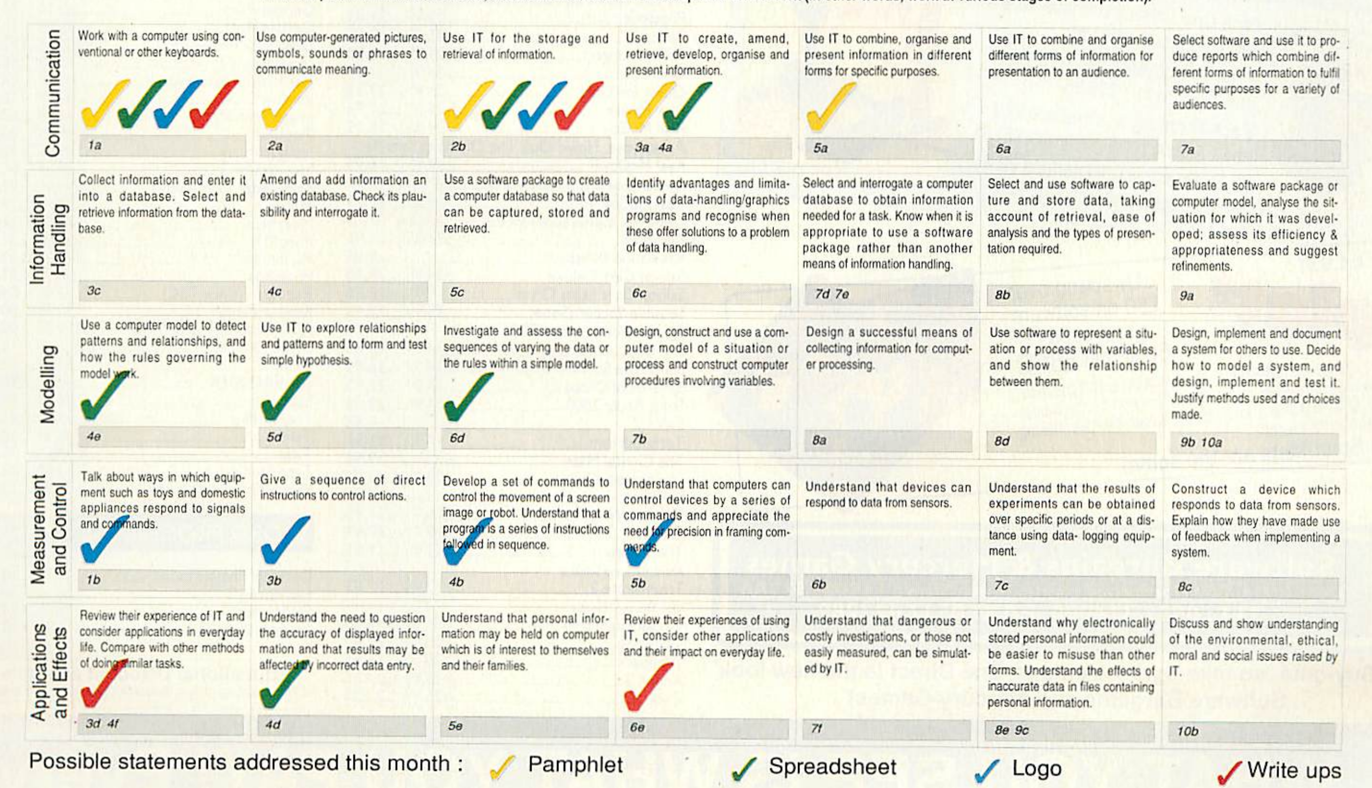
All the work outlined so far relies on three things. First, the support of the rest of the staff, and in particular those you are directly working with you.

Secondly it assumes that subject staff recognise that this is not the be all and end all as far as IT is concerned. It is expected that the skills learned in IT will be continued in other lessons.

Thirdly it assumes that students who are sufficiently motivated will make themselves available either before school, at lunch time or after school to enhance their work as much as possible. That's where I, the Head of IT, come in, both as the person who provides the initial stimulation, and as the person that's available to supervise students outside normal lesson times.

Anyone doing this job on the old 'C' allowance or less is, in my opinion, underpaid. It requires at least a 'D', or more realistically, an 'E' allowance to enable the IT coordinator to have the clout to get everyone else's act together to get the job done.

Next month I'll look at IT in Modern Languages and Humanities.



Information Technology Statements of Attainment

To achieve a level, each student should have at least two pieces of work showing evidence of meeting the criteria. Please note that not only should the finished piece of work be available, but also evidence of the development of the work (in other words, work at various stages of completion).

Communication	Work with a computer using conventional or other keyboards. *1a*	Use computer-generated pictures, symbols, sounds or phrases to communicate meaning. *2a*	Use IT for the storage and retrieval of information. *2b*	Use IT to create, amend, retrieve, develop, organise and present information. *3a 4a*	Use IT to combine, organise and present information in different forms for specific purposes. *5a*	Use IT to combine and organise different forms of information for presentation to an audience. *6a*	Select software and use it to produce reports which combine different forms of information to fulfil specific purposes for a variety of audiences. *7a*
Information Handling	Collect information and enter it into a database. Select and retrieve information from the database. *3c*	Amend and add information an existing database. Check its plausibility and interrogate it. *4c*	Use a software package to create a computer database so that data can be captured, stored and retrieved. *5c*	Identify advantages and limitations of data-handling/graphics programs and recognise when these offer solutions to a problem of data handling. *6c*	Select and interrogate a computer database to obtain information needed for a task. Know when it is appropriate to use a software package rather than another means of information handling. *7d 7e*	Select and use software to capture and store data, taking account of retrieval, ease of analysis and the types of presentation required. *8b*	Evaluate a software package or computer model, analyse the situation for which it was developed; assess its efficiency & appropriateness and suggest refinements. *9a*
Modelling	Use a computer model to detect patterns and relationships, and how the rules governing the model work. *4e*	Use IT to explore relationships and patterns and to form and test simple hypothesis. *5d*	Investigate and assess the consequences of varying the data or the rules within a simple model. *6d*	Design, construct and use a computer model of a situation or process and construct computer procedures involving variables. *7b*	Design a successful means of collecting information for computer processing. *8a*	Use software to represent a situation or process with variables, and show the relationship between them. *8d*	Design, implement and document a system for others to use. Decide how to model a system, and design, implement and test it. Justify methods used and choices made. *9b 10a*
Measurement and Control	Talk about ways in which equipment such as toys and domestic appliances respond to signals and commands. *1b*	Give a sequence of direct instructions to control actions. *3b*	Develop a set of commands to control the movement of a screen image or robot. Understand that a program is a series of instructions followed in sequence. *4b*	Understand that computers can control devices by a series of commands and appreciate the need for precision in framing commands. *5b*	Understand that devices can respond to data from sensors. *6b*	Understand that the results of experiments can be obtained over specific periods or at a distance using data- logging equipment. *7c*	Construct a device which responds to data from sensors. Explain how they have made use of feedback when implementing a system. *8c*
Applications and Effects	Review their experience of IT and consider applications in everyday life. Compare with other methods of doing similar tasks. *3d 4f*	Understand the need to question the accuracy of displayed information and that results may be affected by incorrect data entry. *4d*	Understand that personal information may be held on computer which is of interest to themselves and their families. *5e*	Review their experiences of using IT, consider other applications and their impact on everyday life. *6e*	Understand that dangerous or costly investigations, or those not easily measured, can be simulated by IT. *7f*	Understand why electronically stored personal information could be easier to misuse than other forms. Understand the effects of inaccurate data in files containing personal information. *8e 9c*	Discuss and show understanding of the environmental, ethical, moral and social issues raised by IT. *10b*

Possible statements addressed this month : ✓ Pamphlet ✓ Spreadsheet ✓ Logo ✓ Write ups

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Rhapsody 3 (2mb min)	99.95	92.85
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Make a date for BETT

The BETT Show, billed as the UK's number one event for technology in education, is back. It takes place from January 12 to 15 at Olympia's National Hall in London and, despite the hype, it really is a must visit for anyone involved in IT in schools or colleges.

Over 270 educational IT suppliers have taken space at the exhibition, so you can see the latest hardware and software, as well as check out a host of other IT-related products.

The organiser, Emap Exhibitions, has scored a bit of a coup and got Sir Ron Dearing, chair of the School Curriculum and Assessment Authority, to host a question and answer session on the opening day of the show.

This will be a perfect opportunity for educationalists to discuss with him the final report on revamping the National Curriculum, which is due to be published at the end of this year.

As usual, there is also a comprehensive seminar programme (see below), which offers up-to-date information and advice on the use of IT in most areas of the curriculum, at all levels.

The sessions are provided by a variety of reputable organisations and it's a good idea to plan your visit to catch the relevant day's seminars.

The opening day of the show will see a newsroom in action as teachers, pupils and professional journalists will be collaborating to produce a BETT newsletter and a multimedia news stack.

There will be presentations on using IT for English and language work, too. If you're interested in special needs you'll also want to come on Wednesday for the sessions run by the British Dyslexia Association, or Thursday for seminars from the National Association for Special Educational Needs. Maths and science are covered on the same day.

If you work in a college, Friday's seminars are being presented by the National Association for IT in Further Education, but there are also lectures for geography and modern languages teachers.

On Saturday the focus is on a combination of history, design and technology, music and libraries. However, each seminar is limited to 100 places and these will be allocated on a first come, first served basis, so booking is advisable as it guarantees you a seat and means you will avoid having to queue.

Some free tickets will be available on the day, but for further information ring Cathy McLeod at Emap on 071-404 4844.

To register for free tickets to the show itself, call the BETT ticket hotline on 081-984 7711. A full preview of BETT '94 will appear in next month's *Acorn User* – don't miss it!

SEMINAR PROGRAMME

Wednesday 12 January

Seminar theatre A: British Dyslexia Association

11am: Dyslexia: identification, Dr Chris Singleton
12 noon: Dyslexia: remediation, Jean Hutchins and Ted Pottage
1pm: Dyslexia: support, Jeff Hughes
2pm : Repeat of 11am session
3pm: Repeat of noon session
4pm: Repeat of 1pm session

Seminar theatre B: Project Miranda,Newspapersin Education and NATE

10.30am: Publishing in school, Christina Preston and George Kelly
11.30am: Getting inside texts with IT, NATE English and New Technologies Committee
2pm: Newspapers and literacy, George Kelly
3pm: Repeat of 10.30am session

THURSDAY 13 January

Seminar theatre A: NASEN

11am: Let's stick them on the computer, Roger Bates
12 noon: Supporting vocational areas in FE, Sally McKeown
2pm: Behaving better with a bit of help from IT, Mary Ingram
3pm: Talking stories, Judith Stansfield and Trish Hornsey
4pm: Pictures, symbols and words, Jenny Taylor

Seminar theatre B: Mathematical Association/ Association for Science Education

10.30am: Primary maths and the use of IT, Kathleen M Shaw
11.30am:Computers in the maths classroom: key stages 3 and 4, Alun Green
2pm: A fresh resource for science and technology: SATIS 8-14, Joh Stringer
4pm: SATIS project: key stage 4, Caroline McGrath

FRIDAY 14 January

Seminar theatre A: Geographical Association/ Association for Language Learning

10.30am: Geographic information systems in schools, Diana Freeman and Dave Hassell
12 noon: IT and geography – a minimum entitlement, Eleanor M Rawling
2pm: Ways forward with IT in modern foreign languages, Pam Haezewindt
3.45pm: Log-in and listen, Berthold Weidman

Seminar theatre B: NAITFE

10am: The development of GNVQs in IT, Caroline Wilkinson
11.30am: The use of IT in college management: student tracking, Sue Porter
1pm: GNVQs and S/NVQs, Carolyn McQuaker and Iain Tolmie
2.30pm: IT in flexible and distance learning, Chris West
4pm: Resourcing IT in colleges, Fen Tyler

SATURDAY 15 January

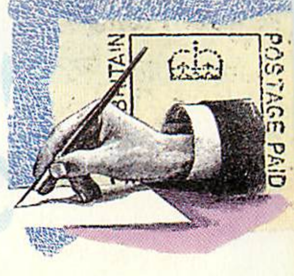
Seminar theatre A: Historical Association/NATHE

10.30am: Developing historical skills using CD-Rom: key stage 2, Colin Rouse and Beth Lofting
11.30am: Integrating database work into history: key stage 3, Dave Martin
1.30pm: Using IT to aid the development of food and textile products in D&T, Jane Down

Seminar theatre B: Incorporated Society of Musicians/UK Reading Association

10.15am: A re-appraisal of technology in the music classroom, Kevin Rogers
12.45pm: Electronic books in the primary classroom, Jane Medwell
3pm: CD-Rom: Now and the future, School libraries group

LETTERS



PROARTISAN FAN

You called it 'the graphics release of the year'. However the demo version of *ProArtisan* you featured on your cover disc has left me somewhat dismayed.

Fair enough, *ProArtisan* does what it does very well. It has some excellent features such as texture, frisket, magic wand and so on; all this complicated stuff is all well and good, but many simple omissions have been made, the most obvious being the ability to alter the origin when pasting a sprite.

Are we supposed to create a canvas bigger than we need just so we can paste a sprite partially off to the left of the screen? Why doesn't opacity affect the drawing of shapes such as rectangles? Why won't transparency work with irregular shapes? Why can't a sprite be used by the spray can? Why can't sprites be used to draw shapes? Why won't the blend sprite tool work when rotating a sprite? The list goes on.

It appears that bitmap art packages on the Arc are merely image processors with a few added extras. All the tools are there, but they are not interconnected, putting a severe limit on how you can use the tools and what can be achieved with the package.

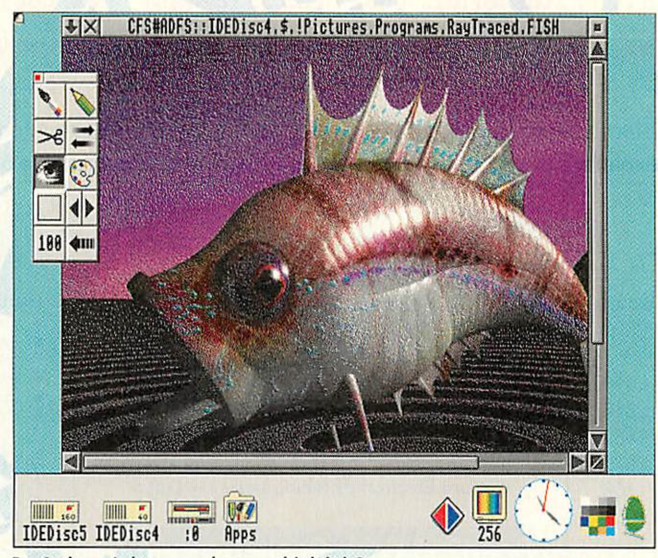
I would urge Clares and Longman Logotron to go out and try any of the Delux Paint packages just to see how the tools are linked together, meaning there are no limitations on how they can be used. In the meantime, all I can do is wait.

Grant Naylor
Manchester

We asked Clares for a response to Grant's criticisms, and the detailed response is too long to print here. However, the gist of the reply is that *ProArtisan* covers a large number of features for its price, and can be used in a 2Mb machine with plenty of memory to spare.

However, Clares disagrees with the comment that *ProArtisan* is just an image processing package wth some added extras; 'This is totally untrue' was the reply.

One of the beauties of including the demo on the disc is that feedback like this is possible. What do you think?



ProArtisan: Is it as good as we think it is?

TO THREE OR NOT TO THREE

We have a collections of A3000s in our department at school, and I would like them updated to Risc OS 3.1, However, I have been told that Acorn are having problems with this operating system and many programs will not run, or crash when used.

Also, apparently the upgrade price has hidden extras which are not publicised. I am constantly told that PCs are cheaper and far more reliable. Is this true?

A Grigg
Nottinghamshire

It is all very well you saying that sticking with Risc OS 2 could be a false economy, but what about the minority who cannot upgrade to the new operating system, not because we can't afford it, but because our hard drives are not compatible?

I bought an Orion 105Mb external drive last May, and spent a lot of time making the right choice.

I spent £520, which should have set me up for life, but when I bought the Risc OS 3.1 upgrade and plugged it in, my hard drive wouldn't work. I phoned Orion who have left me in the lurch because they will not release a new interface board to work with Risc OS 3.1.

Needless to say, I'm now going to be very cautious about who I buy from in the future.

Paul Rogers
Devon

There is no doubt that the opinion of *Acorn User* is simple: upgrade. As we've mentioned before in these pages, there are a few products out there which simply won't work on the new system, but they are few and far between.

Risc OS 3.1 is stable and there are no hidden extras you need to buy beyond the upgrade; as for reliability, this isn't a problem as far as Acorn machines go.

Makes you wonder who starts rumours like the first letter: jealous PC users, perhaps?

HARD TIMES

On Friday last I received an Acorn Pocket Book which I purchased under the Sunday Times/Acorn scheme at the allegedly special price of £199.95 (with two vouchers from the paper). On the same day as I received my Pocket Book I bought a copy of November's *Acorn User*, only to find in the News that the price of the Pocket Book had been reduced to £169.95 + VAT (£199.69).

My special offer through the Sunday Times now seemed to be no offer at all.

To make matters worse, on the opposite page a full page advert priced the Pocket Book with an incredible bundle of extras at only £249.95 inc VAT.

I am extremely disappointed at such behaviour on the part of Acorn, as I believe this verges on sharp practice and takes advantage of both teachers and parents, the very groups Acorn claims to support.

Sharon Pointeer
Reading

Whenever a price cut is announced, there will always be those unlucky few who have just bought that same product before the offer, and in the same way when a new computer is launched, there are those who have just bought the old model and now have an outdated model. Still, that explanation never seems to placate those who have missed out.

Acorn's official response is that they acknowledge the above points, but the Advance offer is entirely separate from the Sunday Times one, and each offer is aimed at different targets: the Advance offer targets existing Archimedes owners, and the price promotion is aimed at users who do not necessarily use Acorns.

Also, the Pocket Book RRP is still £249.95, and the promotional price offer of £199 has simply been extended. That's the official line: make of it what you will.

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Scan256 Grey Scale Scanning

If you need a 256 grey-scale hand scanner for your Archimedes then look no further.
Scan256 gives you up to 256 levels of grey at a maximum of 400dpi and is supported by state-of-the-art sophisticated software – **for only £159.** This makes it the only sensible scanning and image processing solution for the Acorn 32-bit range. Just compare these features:

- More than one copy of the image held in memory at once.
- Allows multiple consecutive operations without saving the original to disk.
- Highly advanced dithering and image size reduction.
- Convolution digital filtering with over 100 filters gives high quality images from poor quality scans.
- Adjustable scale and size during scan.
- Supports State Machine G8 Graphics Card.
- Includes shearing and rotation.
- Saves images in industry standard formats: TIFF, Sprite and AIM.
- True brightness, contrast and gamma correction.
- Multiple options – scale to page, centre sideways selected area.
- Selectable scanning modes.
- Plus much much more...

Please specify Archimedes type, not compatible with A3010, A3020, A4000. **£159**

- Scan256 for A3000 Micro £169

RISC OS 3.1 Upgrades

- Single User Software User £75
- Hardware Upgrade Kit 300/440 £26
- Bulk (10) Software Upgrade kit £329

Archimedes RAM Upgrade

All our memory upgrades are simple to fit. No soldering required. Fitting instructions supplied.

- **R300**-4 Layer RAM upgrade board (Bare). £25
- **R302-A3000** – to 2MB RAM Upgrade £29
- **R303-A3000** – to 2MB RAM Upgrade (expandable to 4MB) £49
- **R304-A3000** – to 4MB RAM Upgrade £99
- **R305-A3010** – to 2MB RAM Upgrade £39
- **R306-A3020/A4000** – to 4MB RAM Upgrade £70
- **R311-A305** – to 1MB RAM Upgrade £30
- **R412-A410/1** – to 2MB RAM Upgrade £25
- **R413-A420/1** – to 4MB RAM Upgrade £50
- **R414-A410/1** – to 4MB RAM Upgrade £75
- **A540/R200** – 4MB RAM Upgrade £249
- **A5000** – 2Mb to 4Mb additional RAM £82

Hi-Speed, Low Cost Archi Hard Disc Drive

Hardware
- Supports proposed ANSI ATA (IDE) specification
- Fast 16 bit MEMC interface interrupt driven to support background disc operations
- 5 Mbytes per second peak transfer rate
- Up to two drives (master and slave) per card
- Multiple cards per machine (up to four)

Software
- All software supplied in ROM
- Filing system 'IDEFS'
- Desktop filer with drive ready detection and disc name under icon
- !IDEForm, WIMP based configuration and formatting software
- Drives can be individually write protected
- Power saving standby modes supported with configurable timeout
- Drives can be used without translation in native mode for minimum overhead
- !IDEFSDisk, creates PC emulator hard discs
- Password protection available

A300/A400 Internal IDE Drive

Part No.	Capacity	Access Speed	Price
ADA 0550	80Mb	17mS	£189
ADA 0530	105Mb	16mS	£219
ADA 0570	210Mb	15mS	£359
ADA 0880	330Mb	15mS	£465

All above 3.5" Drives are supplied complete with Controller Card & cable for use with A300/A400/A500 series machines.

AAA 0300 External Case & PSU for A3000 **£85**
AEA 1060 Archi IDE Hard Disc Podule only **£75**

A5000 Internal IDE Drive
Can be used as 2nd Internal IDE Drive

ADA 1030	80Mb	17mS	£149
ADA 0940	105Mb	16mS	£189
ADA 0950	210Mb	15mS	£259
ADA 0580	330Mb	15mS	£399

A3000 External IDE Drives

ADA 1020	80Mb	17mS	£249
ADA 1050	105Mb	15mS	£289
ADA 1070	210Mb	15mS	£399

New IDE ROM Software for RISC OS 3 (upgrade) for existing users £16

Internal Hard Disc Drives for A3000/A3010

State of the art, 4 layer internal IDE Hard Cards for the A3000. Software supplied in, On-board ROM.

ADA 0770	30Mb	19mS	£129
ADA 0750	60MB	18MS	£199
ADA 0720	80Mb	18mS	£219
ADA 0730	120Mb	16mS	£259

Supplied ready assembled. No soldering required. Simply plug into the allotted space.

Archi IDE Hard Cards

Ready to install, high performance hard cards for A300 & A400 series

ADA 0800	30Mb	19mS	£149
ADA 0890	60MB	18MS	£229
ADA 0670	80Mb	18mS	£239
ADA 0680	120Mb	16mS	£279

Credit Card/Sales: 0582 74 55 55 Sales/Inquiries: 0582 48 77 77

Educational Software

10 out of 10 Early Essentials	£18
10 out of 10 Maths	£18
10 out of 10 Algebra	£18
10 out of 10 English	£18
Animated Alphabet	£18
An Eye for Spelling	£31
Arcventure I – Romans	£24
Arcventure II – Egyptians	£24
Arcventure III – Vikings	£24
Badger Trails	£34
Best Four Adventure	£34
Best Four Language	£34
Best Four Maths	£34
Bookbinder	£43
Bookstore – Primary	£35
Bookstore –Secondary	£52
Britain since 1930	£26
Bumper Disc 1	£14
Bumper Disc 2	£14
Concept Designer	£22
Control Logo	£20
Converta Key	£9
Crystal Rain Forest	£34
Data Word	£14
Desktop Stories	£35
Digi Sim	£35
Dream Time	£19
Expert, Trade and Industry	£34
Farm (5-7 years)	£18
Fleet Street Phantom	£22
Fun School 3 Blue (under 5)	£17
Fun School 3 Red (5-7 years)	£17
Fun School 3 Green (over 7)	£17
Fun School 4 Red (under 5)	£17
Fun School 4 Green (5-7 yrs)	£17
Fun School 4 Blue (over 7)	£17
Gate Array Teaching System	£68
Glimpse	£8
Hilighter	£30
Insight	£68
Investigating Maths	£34
Jigsaw	£18
Landmarks – Aztec	£17
Landmarks – Civil War	£17
Landmarks – Columbus	£17
Landmarks – Egypt	£17
Landmarks – Elizabeth I	£17
Landmarks – Rainforest	£17
Landmarks – Tudors & Stuarts	£17
Landmarks – Victorians	£17
Landmarks – World War II	£17
Linkword – French	£32
Linkword – German	£32
Linkword – Spanish	£32
Logotron Logo	£45
Making of the UK	£35
Mapping Skills	£25
Mapventure	£22
Medieval Realms	£35
Microbugs	£24
Money Matters	£14
Nature Park Adventure	£24
Naughty Stories I	£46
Number in Nat. Curriculum	£34
Numerator	£33
Picture Book	£14
Podd	£23
Recall	£36
Seelinks – Ourselves	£26
Seelinks – Pondwatch	£34
Seelinks – Tourism	£54
Seelinks – Transport	£34
Selladore Tales	£23
Settlement	£30
Snippet	£31
Space Mission Mada	£22
Stig of the Dump	£21
Story	£24
Teachers Cupboard	£24
Teddy Bears Picnic	£22
Time Traveller	£31
Topographer	£62
Victorians	£19
Viewpoints	£33
Wizards Revenge	£16
World Maker	£46
World Map Study	£59
Worst Witch	£21

Desktop Publishing

Acorn Desktop Publisher	£45
Impression Junior	£63
Impression II	£115
Impression Borders Disc	£12
Impression Business Sup.	£38
Impression Style	£89
Impression Publisher	£155
Impression Publisher OPI	£223
Ovation	£82

DTP Utilities

Desktop Thesaurus	£16
Equasor	£36
Font Pack – Avant Garde	£23
Show Page	£139
Spellmaster	£42
Sleuth OCR	£40
Type Studio	£37

Word Processors

DeskEdit 2	£24
Easiwriter II	£114
Easiword Plus	£42
First Word Plus	£45
Pendown	£45
Pendown Plus	£67
Primeword	£50
Wordz	£84

Spreadsheets

Eureka	£95
ProSheet	£39
Resultz	£105
Schema	£89

Databases

DataVision	£66
Flexifile	£68
Knowledge Organiser	£75
Masterfile III	£45
Multistore v2.01	£99
Pinpoint	£64
Pinpoint Junior	£23
S-Base Developer	£139
S-Base Personal	£69

Integrated Packages

Acorn Advance	£87
Desktop Office	£69
Pipedream 3	£70
Pipedream 4	£117

Languages

Acorn Desktop Assembler	£118
Acorn Desktop C	£179
Acorn PC Soft	£89
RiscBASIC Compiler	£66
RiscFORTH Compiler	£66
Robo Logo	£37

Printer Drivers

Expression PS	£19
Citizen Colour Driver – OS 2	£15
Deskjet 500C/550C Driver	£15
Epson JX Printer Driver	£15
Star Colour Driver – OS 2	£15
Turbo Driver – Canon BJ	£42
Turbo Driver – Canon BJC	£42
Turbo Driver – Epson Stylus	£42
Turbo Driver – HP	

Comms Software

ArcComm 2	£45
ArcTerm 7	£58
Hearsay	£68

Accounting

Business Accounts	£275
Financial Accountant	£225
Home Accounts	£33
Payroll Manager	£66
Prophet Accounts	£131

CAD

Arc PCB	£79
Arc PCB Professional	£169
Arc PCB Schematics	£229
CADet	£125
SolidCAD	£65
SolidTools	£169

Graphics

Arisan 2	£42
Autosketch II	£65
ArcTist	£14
Atelier	£59
Artworks	£118
Chartwell	£24
Craftshop 1	£18
Craftshop 2	£18
Euclid 2	£39
Film Maker	£55
GraphBox	£54
GraphBox Professional	£102
Illusionist	£68
Kid Pix	£34
Poster	£74
Presenter GTI	£65
PrimeArt	£46
Pro Artisan 2	£107
Revelation II	£74
Revelation Image Pro	£125
Titler	£114

Miscellaneous

Articulate	£14
Armadeus	£58
Compression	£32
Investigator II	£20
Recordz	£32
Rhapsody 3	£78

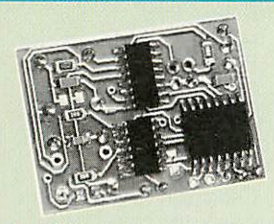
Games

Air Supremacy	£13
Apocalypse	£14
Arcade 3 Compilation	£11
Battle Chess	£20
Battletank	£9
Black Angel	£23
Boogie Buggie	£14
Break 147 & Superpool	£19
Bug Hunter in Space	£9
Cataclysm	£15
Champions Compilation	£21
Chess 3D	£14
Chocks Away Compendium	£26
Chopper Force	£18
Chuck Rock	£13
Crystal Maze	£32
Cyber Chess	£25
Cycloids	£20
Demons Lair	£18
Dungeon	£24
Ego Repton 4	£17
Elite	£31
Enter the Realm	£17
E-Type Compendium	£17
Fervour	£18
Galactic Dan	£14
Gods	£18
Grevious Bodily Arm	£14
Hero Quest	£21
Interdictor 2	£22
Iron Lord	£13
Jahangir Khan Squash	£19
James Pond	£18
James Pond 2	£17
Lemmings	£18
Lotus Turbo Challenge II	£18
Mad Professor Mariati	£14
Mahjong Patience	£15
Master Break	£13
Man at Arms	£14
Manchester Utd II	£18
Manchester Utd in Europe	£18
Nebulus	£18
Oh No! More Lemmings	£14
Omar Sharif's Bridge	£18
Pandora's Box	£17
Pipe Mania	£15
Play It Again Sam	£17
Populous	£21
Powerband	£14
Pysanki	£14
Quark	£19
Quazar	£10
Quest for Gold	£12
Real McCoy 2	£21
Real McCoy 3	£22
Real McCoy 4	£22
Redshift	£9
Return to Doom	£16
Repton 3	£14
Saloon Cars Deluxe	£24
Sim City	£21
Stunt Racer 2000	£24
SWIV	£18
Talisman	£8
Technodream	£18
The Last Ninja	£18
Trivial Pursuit	£22
Twin World	£13
UIM	£23
Virtual Golf	£24
White Magic 2	£15
Worldscape	£16
Zool	£18

Acorn Multimedia

- Multimedia Expansion £485
- Multimedia Expansion + 16 bit SCSI £585

VIDC Enhancer

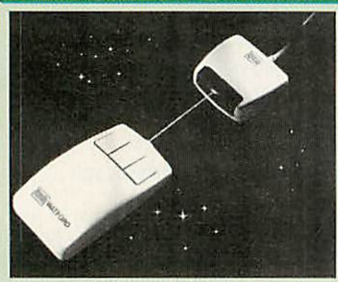


Our two unique VIDC add-on boards for the Archimedes cater for all VGA and Multiscan monitors and screen modes. The multimode software supplied, provides all the new modes for the selected monitor type, including the now standard Computer Concepts modes. With VGA monitor, you are no longer restricted to a few modes. A Desk Top application supplied on disc, allows new modes to be designed and existing modes to be modified for particular monitors.

Super VGA VIDC Card: Its unique design allows the horizontal and vertical sync to be buffered and have the polarity changed under software control **£35**

MultiVideo VIDC Card: As above but for MultiScan monitors only. **£19**

Archi Cordless Mouse



Features
- Infra Red Signal Transmission
- High Resolution 200 DPI
- High Tracking Speed of 600mm/s up
- Anti-static Silicon Rubber Coated Ball
- Low Friction Teflon Footpads
- Power - by two AAA size batteries (not included)
- Automatic Standby Mode after 5 minutes inactive
- Auto Power Shut-Down after 20 minutes inactive

Price £26

Archi A4 Scanner



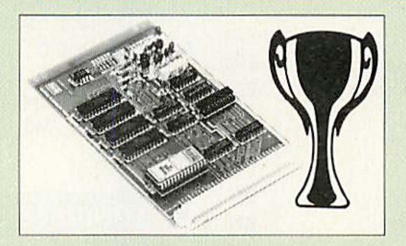
The 216mm scanning width can cope with both desktop scanning of single sheets, photographs, diagrams, etc., with its fast ten page automatic document feeder, but it can also detach from the feeder to become a convenient hand-held full page scanner for larger documents or pictures. Scanned image control can be freely adjusted in increments of 10 dots per inch from 100 up to 400 dpi resolution with 64 levels of grey scaling. A built in shading controller and manual brightness control achieve optimum image clarity.
Unlike some scanners, which use a red light source, the Watford scanner uses a yellow/green source which vastly improves the light/dark contrast, thus eliminating the effect where any red-based colours are faded down to white and so do not show up in the scanned image.

Archi A4 Scanner	£199
Sheet Feeder for above	£75
Scanner + Sheet Feeder	£269

Spares for Archimedes

Keyboard Controller	£29	Cased Keyboard	£120
VIDC	£39	A3000 Keyboard	£45
I/O Controller	£39	ARM 2 CPU	£39
A400 Floppy Drive	£59	Fan Filter	£6
A3000 Floppy Drive	£59	Keystrip	£5
A300/400 PSU	£89	MEMC	£29
A3000 PSU	£49		

Archi Real-Time Digitiser



Now supplied with NEW RISC OS Version Software

Watfords' Archimedes Video Digitiser is the most sophisticated digitiser ever designed for a micro. It provides a fast and flexible means of capturing images from a video camera or recorder for display and manipulation on the Archimedes range of Micros. Off-air televison signals may also be digitised via a video recorder or TV tuner. Please write for further details.

Price £75

A Set of Colour Filters for colour image grabbing using a video camera £16

Archi to BBC Serial Link Mk 2

Using this simple data link, it is possible to solve all your BBC to Archimedes data transfer problems. The kit is supplied with a disk, and the necessary cable to connect the two computers.
- Risc OS 2 Version £15 • Risc OS 3 Version £16

(P.S. For A3000 Serial Upgrade **(£19)** required)

A3000 Accessories

- 3.5" External Drive £95
- Monitor Stand £15
- Technical Manual £32
- Serial Upgrade £19
- A3000 Dust Cover £5
- Micro+monitor cover £9
- Acorn Carrying Case for A3000 £10
- A3000 User Port/Midi Upgrade Card £44
- A3000 User/Analogue/IIC I/O Card £38
- A3000 External Podule Case £15

A3000 I/O Card (User, Analogue & IIC)

This NEW versatile I/O Card from Watford, fits inside the A3000 and includes an Analog to Digital Converter, a User Port, and an InterIC (IIC) connector.

The card allows many of the peripherals developed for the BBC to be used with the Archimedes A3000. The ADC and User Port have the same pin out and connectors as the BBC computers.

Extensive RISC OS software is supplied to provide BBC OSBYTE calls for support of the ADC and User Ports, including the BASIC keyword ADVAL. The software provides extended RISC OS support for separate interrupts from both the ADC and User Ports, permitting easy interrupt driven operation.

The card is provided with all the software in ROM and is automatically loaded when the machine is turned on.

Peripherals connected to the ports can obtain up to 500mA of power at +5V. A fuse is fitted to the card to protect the A3000 from damage arising from accidental short circuit of the power output.

Features:
- An 8 bit User Port with a standard 20 way IDC connector, compatible with the User Port on the BBC computers and the Archimedes I/O Podule.
- A 10 bit Analog to Digital Converter with a standard 15 way D type connector, compatible with the ADC on the BBC range of computers and the Archimedes I/O podule.
- An InterIC (IIC) Port with a 5 pin DIN socket to connect the A3000 to external IIC devices. **£38**

Concept Keyboards

A4 Standard Pack	£89	Primary Pack	£95
A3 Standard Pack	£94	Primary Pack	£99
Designer Pack A4	£104	A3 D Pack	£104
Universal 2010 Keyboard A3			£107
Universal 2010 Keyboard A4			£104



Special Finance Deal

Now everyone can afford an Archimedes Micro, monitor, printer, Hard Drives etc., with Watford Electronics 12, 24 & 36 months credit facility.

Please telephone 0582 74 55 55 for details.

Archimedes External Disc Drive Interface

With this interface it is possible to connect almost any 5.25"/3.5" disc drive with its own power supply to the Archimedes. Upto 4 disc drives can be connected. Fully Buffered Board. NO SOLDERING is involved. Supplied complete with necessary lead.

Price £21

Back Plate Extension
- A300/400 £15; • A3000 £14

ARM 3 Turbo Card MkII

Simply The Best



Here it is at last – the all new Mark 2 version of Watford's highly acclaimed ARM 3 processor board for the Archimedes and now also the A3000 series computers. Using the latest surface mount technology on a high quality four layer circuit board we have reduced the overall size to a mere 53mm x 45mm, and the cost to only £145. Mk II upgrade will increase the speed of your micro by a factor of 3 to 6.
Any competent A300 or A400/1 series micro owner can fit the upgrade himself, as we provide full fitting instructions and a special ARM chip extraction tool. However for A3000 micros and those not wishing to perform the upgrade themselves, we will collect, upgrade and return your micro by courier service, at an additional cost of £24.
(A300 and old A440 series owners please note – you will need to upgrade to MEMC1A for ARM3 to work.)

RRP £249

Special Offer £119

Network Accessories/Software

Master Econet Module	£40
Archimedes Econet Module	£40
A3020/4000 Econet Module	£49
Acorn A4 Econet Module	£50
Archimedes Ethernet Card	£139
A3020/4000 Ethernet Card	£179
AUN/Level 4 Fileserver	£379
Econet Starter Kit	£137
100m Econet Cable	£99
Econet Socket Box	£7.50

(P.S. Full range of Network Accessories/Software/ Site Licences available. Telephone for details.)

Leasing finance at very attractive rates now available to Businesses (subject to status), Schools, Colleges, Universities, Government Depts. and Local Councils.

Continued→ → → → → → → → → →

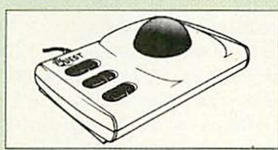
Archi Mk II Hand Scanner

Watford's Mk II hand scanner has a maximum resolution of 400 dpi. The scanning width is 4". The sophisticated software is supplied in a 64K ROM, located on a standard single width expansion podule. As you scan a page, the image appears in the scanning window on the screen, scrolling up in real time. Other facilities include Cropping and scaling to any size including stretching and squashing in X and Y directions separately. Colour tinting. X and Y flip. Edge detection which turns solid objects into outlines. Images can be printed on any printer supported by RISC OS.
On-screen help is provided via the RiscOS interactive help facility. (Please write in for full technical details).

AHS-4 Archi 300/400 Version £89
AHS-3 Archi A3000 Version £99

Quest – Tracer ball

An attractively finished, extremely reliable, mouse replacement, input device. Requires very little desk space. Connects directly to your BBC B, BBC Master or Archimedes Micro.



QT-10 BBC/Master Version £25
QT-20 Archimedes Version £26

Antistatic Lockable Disc Storage Units

- **M35** – holds up to 50 5.25" discs £4.95
- **M85** – holds up to 95 5.25" discs £6.95
- **M25*** – holds up to 25 3.5" discs £4.95
- **M50** – holds 50 3.5" discs £6.50
- **M100** – holds 100 3.5" discs £6.99

* Not lockable

Disc Plonker Rack

When using ones micro, there is a tendency to have more than one Disc on the desk. This exposes them to the hazards of fingerprints, scratches, dust, coffee and an untidy desk.



Why not protect your valuable data from all these hazards with the help of our extremely handy and low cost DISC PLONKER RACK. Holds up to eight 5.25" discs. **£2**

3M – Diskettes

Lifetime warranty on 3M Discs

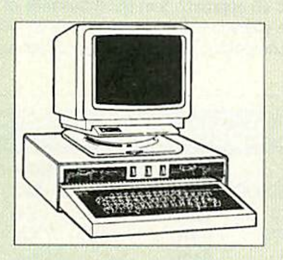
- *10 x 5.25" S/S D/D 40T (744)* £5
- *10 x 5.25" D/S D/D 40T (745)* £5
- *10 x 5.25" S/S D/D 80 Track (746)* £6
- *10 x 5.25" D/S D/D 80 Track (747)* £7
- *10 x 5.25" 1.6M D/S H/D for IBM* £8
- *10 x 3.5" S/S D/D 40/80 Track* £6
- *10 x 3.5" D/S D/D 40/80 Track* £6
- *10 x 3.5" D/S H/Density* £10

Top Quality Diskettes

Watford's life time guaranteed disc are supplied complete with self stick labels & plastic library case.

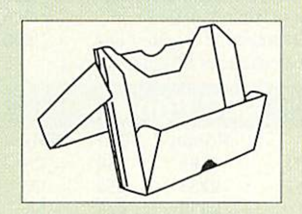
- *10 x **M3** 3.5" D/S D/D 80 Track* £6
- *10 x **M9** 3.5" D/S High Density* £10
- *10 x **M4** 5.25" S/S D/D 40 Track* £5
- *10 x **M5** 5.25" D/S D/D 40 Track* £5
- *10 x **M7** 5.25" D/S D/D 80 Track* £6
- *10 x **M8** 5.25" D/S H/D Hi-Density* £9

Disc Drives in Monitor Stand



- **CDPM 800** – Twin 5.25", 800K disc drives mounted in an attractively finished Beige colour plinth for the BBC B & Master 128K micros. Supplied complete with integral power supply, cables and Utilities disc. The mains switch with neon On/Off light indicator is mounted on the front panel for ease of use. **£139**
- **DP35 800** – Same as above except, one disc drive is a 5.25" and the other is 3.5". **£135**

Plastic Library Cases



DLC1 – Holds 5 x 3.5" Discs. £1.50
DLC2 – Holds 10 x 3.5" Discs. £1.90
DLC3 – Holds 5 x 5.25" Discs. £1.60
DLC4 – Holds 10 x 5.25" Discs. £2.00

Disc Albums

Attractively finished in leather-look PVC Vinyl

DW1 – Holds 6 x 3.5" Discs £2.50
DW2 – Holds 6 x 5.25" Discs £3.00
DW3 – Holds 20 x 5.25" Discs £3.50
DW4 – Holds 40 x 3.5" Discs or 5.25" Discs £4.50

Cleaning Kits & Aerosols

- 5.25" Disc Cleaning Kit £4
- 3.5" Disc Cleaning Kit £4
- PC Cleaning Kit £7
- Professional PC Cleaning Kit £12
- Aerosol Dust Spray Can £3
- Servisol Foam Cleaner Can £3
- Antistatic Aerosol Spray £3

Watford's MkII 1772

Single/Double Density DFS

Many of our customers have wanted to use our superior DDFS and Acorn ADFS together. Now our Mk II DDFS Board with its 1772 Disc Controller, has been adapted to allow the use of Acorn ADFS as well. It also has all the commands of the Acorn's 1772 DFS, plus many more added features.

- Complete Kit — Special Price £39
- DDFS Manual — (No VAT) £6.95

BBC Software

Logotron Logo (ROM)	£43
Numerator (ROM)	£39
Pendown (ROM)	£32
View 3.0 (ROM)	£45
ViewSheet (ROM)	£36
ViewStore (ROM)	£36
ViewSpell (ROM/80T Disc)	£28
InterWord (ROM)	£36
InterSheet (ROM)	£37
InterChart (ROM)	£25
InterBase (ROM)	£49
Mega3 – Word/Chart/Sheet (ROM)	£76
SpellMaster (ROM)	£42
WordWise Plus (ROM)	£38
WordAid (ROM)	£24
View Printer Driver Generator (Disc)	£12
View Printer Driver (ROM)	£29
Fun School 3 Under 5s (Disc)	£17
Fun School 3 5-7yrs (Disc)	£17
Fun School 3 Over 7s (Disc)	£17
Quest Paint (ROM/Disc)	£23
ConQuest (ROM)	£24
Quest Fonts (Disc)	£15
Quest Integrex 132 Driver (Disc)	£18
Wapping Editor (ROM/Disc)	£39
Wapping Art (Disc)	£15
Wapping Fonts #1 (40T Disc)	£12
Wapping Fonts #2 (80T Disc)	£13
AMX Super Art (ROM/Disc)	£25
AMX Stop Press (ROM/Disc)	£18
Page Fonts for Stop Press (Disc)	£13
BASIC 2 (ROM)	£22

BBC Add-Ons/ Accessories/Spares

32K Shadow RAM Card	£39
Solderless ROM Board	£32
32K ROM/RAM Card	£39
64K ROM/RAM Card	£52
128K ROM/RAM Card	£83
Sideways ZIF Socket System	£18
16K Static RAM for ROM/RAM	£8
16K DRAM for ROM/RAM	£13
Battery Backup for ROM/RAM	£3
Read/Write switch for ROM/RAM	£2
Sideways RAM Utilities Disc	£8
AMX Mouse only	£25
Quest Mouse III	£25
Quest Tracerball	£25
Mouse Mat (Red, Green or Blue)	£3
Master Twin ROM Cartridge	£9
Master Quad ROM Cartridge	£14
Data Duck	£14
Power Duck	£8
Serial ULA	£14
Video ULA	£14
Master ULA (47, 48, 49, 50, 58, 60)	£15

Acorn & Watford DFSs

- Watford DFS Kit complete £42
- DFS Manual (comprehensive) £6
- Acorn DNFS ROM £17
- Acorn ADFS ROM Upgrade £25
- Acorn 1772 DFS ROM Kit £49
- Acorn DFS Kit complete £42

TEX EPROM ERASERS

TEX Eraser operates following the manufacturer's specifications, to give maximum possible working life to EPROMs by not erasing too fast. Erases up to 10 EPROMs. Has an automatic safety cut-off to switch off UV lamp when opened. £36

- Spare UV Lamp £12

Acorn Speech Synthesizer package complete, for the BBC B Microcomputer
Special Offer £6

Microvitec Monitors

- **1451** – Medium Resolution #£199
- **Cub3000** Medium Res for A3000 #£195
- **CubScan 1440** – 14" £389
- **CubScan 1450** – 15" FST £POA
- Dust Cover for Microvitecs £5.50
- **Touchtec 501 Touch Screen** £239
- **Touchtec 3000** (For RiscOs 2 only) £POA

\# 3 years parts & labour warranty

Multiscan Monitors

Eizo T240i	£483	Pan TX1713MAB	£616
Eizo F340i-W	£625	Phil 4CM4270	£289
Eizo F550i-W	£899	Phil 7CM3279	£249
NEC 2A-N	£274	Phil 7CM5279	£269
NEC 3FG	£360	Taxan 787	£229
NEC 3FGe	£449	Taxan 787LR	£239
NEC 4FGe	£479	Taxan 789LR	£289
NEC 5FG	£899	Taxan 795-PC	£465
NEC 5FGe	£789	Taxan 875+ LR	£737
Panasonic C1381	£199		

Panasonic monitors carry 2 years on-site maintenance warranty

Aries A-Scan Pro Monitor

Its multiscan circuitry provides automatic adjustment for frequencies between 31 and 56KHz horizontal, and 43 and 70Hz vertical. Its 0.28mm dot pitch high resolution tube provides super sharp text graphics, while a high speed (70/72Hz) refresh rate provides a flicker-free display easing the eye strain. The VIDC Adaptor supplied with the monitor allows high resolution operation in all screen modes. **£299**

- Aries A-Scan Pro 17 Plus – 17" £585
- Aries 6000 – 15" Flat Screen, 0.28mm non-glare 1024 x 768 non-interlaced (70Hz) Microprocessor controlled £395
- Aries 7000 – 17" Flat Screen, 0.28mm non-glare. Maximum resolution 1280 x 1024 non-interlaced. Microprocessor controlled £625

Philips Monitors

- **BM7502** 12" Hi-res Green £88
- Dust Cover for Philips Monitors £6
- Spare Monitor Leads (various) £7

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Continued→ → → → → →

Despite appearances, we offer you very little choice.

At Watford Electronics, we will only offer any product when we are convinced that we can sell it at the best price with the right level of support. It's an approach that our thousands of customers appreciate, for we are now celebrating twenty-one years in the business. So as you look through all the lists of items that follow and discover how competitive we are, you'll discover just how little choice you have. **You simply must call us.**



Laser Printers

All Laser printers (excluding HP Lasers) include 12 Months On-Site maintenance

Brother HL6	6ppm	£427
Canon LBP4+ 1.5M RAM	4ppm	£639
Canon LBP4U	4ppm	£359
Canon LBP-8 Plus IIIR	8ppm	£1420
Canon LBP-8 IV 600DPI	8ppm	£932
Epson EPL5000	6ppm	£439
Epson EPL-5200	6ppm	£449
Epson EPL-7500 PS	6ppm	£1135
HP Laserjet 4 ML	4ppm	£747
HP Laserjet 4	8ppm	£1023
HP Laserjet 4L	4ppm	£455
HP Laserjet 4M	8ppm	£1347
HP Laserjet 4P	4ppm	£737
HP Laserjet 4MP		£1047
NEC Silentwriter S62P PS#	6ppm	£989
NEC Silentwriter S102	6ppm	£893
OKI OL400E	4ppm	£399
OKI OL400EX	4ppm	£418
OKI OL410EX	4ppm	£525
OKI OL 830PS	8ppm	£799
Panasonic KX-P4410	5ppm*	£424
Panasonic KX-P4430	5ppm*	£535
Panasonic KX-P4440PS	10ppm*	£799
Star LS-5	5ppm	£449
Star LS-5 EX (RISC Based)	5ppm	£515
Star LS-5 TT True Type+Mac	5ppm	£739

*2 years on-site warranty

Laser Toners

Canon 2, 3 & 4	£52	HP Laserjet 4L	£49
Canon LBP4U	£55	KX-P4450/50i/55	£19
Canon 8/Star LP8	£56	KX-P4410/20/30	£22
Canon LBP8-IV	£72	NEC 290	£78
Epson GQ	£12	NEC S60/60P/62P	£89
EPL 40/41/4300	£55	OKI OL400/800	£18
EPL 5200	£90	OKI OL400e	£17
EPL 71/7500	£117	Star LP4	£48
HPII/D, III/D	£55	Star LS5	£63
HP IIP, IIIP	£48	VM800 8K pages	£99
HP4/4M	£72	Qume Crystal(3)	£99

Laser RAM Upgrades

Type	1M	2M	4M	8M
HPIIP; IIIP	£49	£80	£132	
HPII & IID	£60	£96	£142	
HPIIIsi	£63	£85	£158	£299
LJ4/4L//4M	£69	£79	£145	£299
EPL40/41/4300	£70	£110	£205	
EPL 50/5200	£–	£115	£215	
KX4410/30	£80	£115	£185	
KX4420/50i	£65	£89	£149	
NEC S62/S102	£99	£180	–	
Star LBP	£139	£275	–	

Jetpage Postscript Cartridge

- HP IIP/IIIP £225 • IID & III £227

Various Add-Ons

- HP Premier Font Collection £19
- Laserjet Various Font C'tridges from £45
- HP Postscript Module for LJ4 £270
- Laserjet 4 Powered envelope feeder £199
- Jetdirect Ethernet Card for Laserjet IIIsi/4/4Si £339
- 500 Sheet paper cassette (3rd Bin) £205
- HPIIP/IIIP Lower Cassette Tray £115
- Canon LBP-4 Lower Cassette Tray £96
- Ozone Filter P4420 £9; P4450/55 £20

Panasonic Printers

	Printer	CSF	Ribbon
KX-P1123	£119	£49	£7
KX-P1170	£93	£59	£6
KX-P1624	£210	£126	£8
KX-P1695	£267	£126	£6
KX-P2023	£150	£155	£8
KX-P2123M	£144	£69	£7
KX-P2124	£215	£89	£7
KX-P2180M	£126	£69	£7
KX-P2624	£269#	£126	£8

#Includes 12 months on-site warranty

- Colour Kit for KX-P2180; KX-P2123 and KX-P2124 £37
- Dustcover for 80 column printers £6
- Serial Interface for above Printers £46
- Black Ribbons for P1081, 1180, 1124 £7
- 32K Buffer for above Printers £16

P.S. Our original Panasonic Ribbons are guaranteed to last 3 million characters.

Canon Bubblejet Printers

	Printer	CSF	2nd Bin	Ink Cart
BJ10SX	£159	£43	–	£15
BJ200	£239	–	–	£16
BJ230	£285	–	–	£16
BJ300*	£329	£88	£88	£11
BJ330*	£379	£92	£79	£11
BJC600	£439	–	–	£12
BJC800	£1219	–	–	–

- Optional Battery Pack for BJ10EX/SX £33
- BJ10E/10EX/10SX/200/230 Jumbo Ink Refill pack (twice cartridge volume) £12

* includes 12 months on site warranty

Citizen Printers

120D+	£95	Swift 200	£160
PN-48	£189	Swift 200C	£178
Swift 90	£129	Swift 240	£200
Swift 90C	£143	Swift 240C#	£212

2 years parts and labour warranty on all above Citizen Printers.

FREE Windows Printer Driver

- Swift 24 Ribbons: Black £4 Colour £13
- Cut Sheet Feeder for 80 col. printers £75
- Citizen 120D Ribbons £3.50

Star Printers

	Printer	CSF	Ribbon
LC15	£186	£135	£5
LC20	£102	£60	£4
LC100C	£117	£65	£9
LC24-15	£245	£135	£5
LC24-30C	£–	£–	£–
LC24-100	£140	£69	£5
LC24-300C	£–	£–	£–
LC24-20 Mk2	£175	£65	£5
LC24-200C	£205	£65	£12
LC200 C	£151	£65	£12
SJ144 colour	£408	£–	£–
XB24-200C	£324#	£80	£12
XB24-250C	£389#	£139	£12
ZA-200C	£260#	£89	£12
ZA-250C	£324#	£139	£12

Includes 12 months on-site warranty

- Black Ribbons for Colour Printers £5
- Serial 8K I'face LC10/15/24/200 £52
- 32K Buffer LC/XB24-10; 15; 200 £52

Scanners

AT – HP-ScanJet IIP £529; IIC £949
PS/2 – HP-ScanJet IIP £530; IIC £950
HP Auto Doc Feeder IIP £229; IIC £365
GT-6500 Epson A4 incl. Pic Publisher LE; Interface card & cables £575
GT 8000 Epson A4 scanner with SCSI I/F Card Pic Publisher £999

Epson Printers

	Printer	CSF	Ribbon
DFX5000C	£1085	£–	£23
FX870	£249	£47	£4
FX1170	£310	£69	£6
LQ100	£129	£–	£4
LQ570+	£199	£45	£4
LQ870	£355	£45	£6
LQ1060	£590	£155	£6
LQ1070	£289	£69	£6
LQ1170+	£420	–	£10
LQ2550	£679	£360	£6
LX100	£109	£–	£4
LX400	£94	£69	£4
LX850+	£139	£69	£4
LX1050	£195	£125	£6
SQ870	£415	£170	£23
SQ1170	£560	£155	£23
Stylus 300	£169	£–	£10
Stylus 800	£199	£–	£10
Stylus 1000	£355	£–	£10

Epson RS232 Interface

Standard **£28;** +8K Buffer **£75**

- LQ100 Tractor Feed £29
- FX850/LQ800/850 Tractor Feed £69
- FX/LQ1050 Tractor Feed £85
- LQ2500/2550 Tractor Feed £90
- Dustcovers for 80 col printers £6

NEC Printers

	Printer	CSF	Ribbon
P22Q	£181	£59	£6
P32Q	£235	£59	£6
P62	£339	£79	£8
P72	£395	£115	£8
P90	£577	£115	£8

- Black Ribbons P20; P32 £6
- Ribbons P60/70/P90 Black **£8;** Colr **£14**
- P60/70 Colour Option Kit £59
- CSF for P20 **£59;** P60 **£89;** P70 **£89**

Universal Printer Sharers

Connect up to 4 Micros to 1 printer or 4 Printers to 1 Micro with our combined, Sharer/Changer switch boxes.

Standard Low Cost Sharers

Connects	Serial	Parallel
• 2 to 1	£8	£9
• 3 to 1	£11	£12
• 4 to 1	£15	£16

Professional Sharer Units

Connects	Serial	Parallel
• 2 to 1	£12	£13
• 3 to 1	£15	£17
• 4 to 1	£24	£26

Auto Printer Sharer Switch

Connects	Serial	Centronics
• 2 to 1	£27	£29
• 4 to 1	£44	£45
• 8 to 1	–	£75

256K Multi Spooler

These Parallel Auto printer sharer switches have built-in 256K Buffer.

- 2 In / 2 out £99 • 4 In / 2 out £115
- 8 In / 1 out £149

(Cables for all printer switches are from £5 each please specify the type required when ordering.)

Compact Converter Unit

Serial to Parallel & Parallel to Serial £32





AMERICAN EXPRESS

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Hewlett-Packard Printers

DJ500 Colour	£235	D-Writer 510	£197
DJ550 Colour	£393	D-Writer 500C	£235
DJ310 Mono	£187	D-Writer 550C	£393
DJ310 Col. Kit	£49	Paintjet XL300+	£1729
DJ510 Mono	£197	Quiet Jet+	£299
DJ1200C PS	£1373	DJ Portable	£189

+ Includes 12 months on-site warranty
3 years on-site maintenance available as follows:
DeskJet & DeskWriter mono £55
DeskJet & DeskWriter colour £65

- Paintjet Cartridge Black £17; Colour £27
- DJ Portable CSF £49; Carrying Case £49

Desk Jet 500 Accessories

- Ink Cartridges Black £13; Colour £22
- High Capacity Ink Cartridges Black £20
- Ink refill Double Pack (JetFill) £10
- Ink refill High Capacity (JetFill) £13
- 256K RAM Cartridges 510/500C/550 £49
- Epson FX Emulation Cart.(500 mono) £45
- DJ 500/510/550 Dust Covers £6
- 636G 50 x Transparencies A4 £35
- 636J 50 x Glossy Paper A4 (also XL) £35
- 630Z 50 x Cut Sheet Paper A4 £15
- 500 Sheets A4 90gms Cartridge paper £7

Plug In Font Cartridges for DJ 500

22706B - Prestige, Elite, Line Draw £55
22706C - Letter Gothic & HP Line Draw £56
22707P - Proprint Emulation Cartridges £57

Fujitsu Printers

	Printer	CSF	Ribbon
B100 Inkjet	£146	£35	£14
B200 Inkjet	£209	£35	£14
DL1150	£209	£99	£6
VM600 Laser	£529	–	–
VM600E	£769	–	–

Roland Plotters

DXY1150	£575	DXY1250	£725
DXY1350	£939	DPX2600	£POA
Sketchmate A4	£335	A3	£449

Printer Leads

(On continuous fanfold backing sheet)

1,000 90 x 36mm (Single Row) £4.50
1,000 90 x 36mm (Twin Row) £4.60
1,000 90 x 49mm (Twin Row) £4.95
1,000 102 x 36mm (Twin Row) £4.70

Laser Printer Labels on A4 Sheets

3750 – 70 x 29mm (3 Rows x 10) £15.50
2400 – 70 x 37mm (3 Rows x 8) £15.25

Listing Paper (Perforated)

- 1,000 Sheets 9.5" x 11" Fanfold £7
- 2,000 Sheets 9.5" x 11" Fanfold £11
- 1,000 Sheets 9.5" x 11" NCR 2 Part £21
- 1,000 Sheets 15" x 11" Fanfold £9
- 2,000 Sheets 15" x 11" Fanfold £16
- 1,000 Sheets true A4 Fanfold 70gms £11
- 2,000 A4 Fanfold Paper £19
- 500 Sheets A4 80gms Bond £2.50
- 500 Sheets A4 90gms Cartridge for Ink Jet/Laser printers £7

Printer Leads

- PC Parallel 2m **£4;** 5m **£8;** 10m **£13**
- 25pin D Male/Male 2m **£4;** 5m **£8**
- Centronics Double Ended 4' **£5;** 6' **£6**
- RS232 Leads Various £POA
- **PC Keyboard Extension lead coiled £5**

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Integrex Ink Jet Printers

- Paper Roll for Integrex 132 £6.50
- BBC Screen Dump Software £10
- Colour Cartridge £23
- Black Cartridge £14
- 100 A4 OHP transparencies £55
- Colour Jet 2000 £599
- Betajet Ink Jet Printer £185
- Betajet Cut Sheet Feeder £43
- Integrex Colourjet Series 2 £335
- Auto Sheet Feeder for Series 2 £45

PACE Fax/Modems

All Modems BABT Approved.
Pace modems include 5 years warranty

Linnet Plus – Intelligent, V21/23 Auto Dial/Answer, Hayes Compatible **£89**

Linnet 24+ – Intelligent, V21/23, V22, V22bis, Auto Dial/Answer Hayes Compatible **£135**

Linnet Quad – Intelligent, V21/23, V22, V22bis, V42bis, MNP 4 & 5, Auto Dial/Answer, Hayes Compatible **£159**

Linnet 32 – V32, V22bis, V42bis, V42, MNP 4 & 5 **£239**

Linnet 32+ – V32bis, V32, V22bis, V22, V23, V21, V42bis, V42, MNP 4 & 5 **£285**

Ultralink Quad – V22bis, V22, V21, V23, V42bis, V42, MNP 4 & 5, Upgradable to Ultralink 32 Plus Spec. **£195**

Ultralink 32+ – Intelligent, V32bis, V32, V22bis, V22, V21, V23, V42bis, V42, MNP 4 & 5, 2 & 4 wire leased line with P.S.T.N, dial backup and auto restoral **£389**

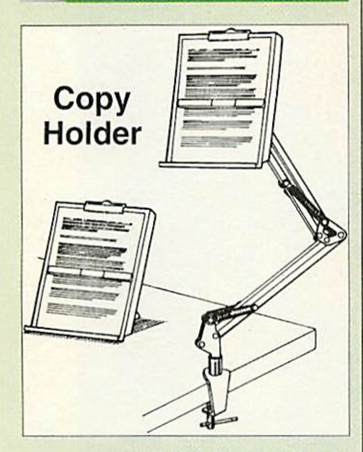
Microlin Fax/Modem – Complete with Winfax/Dosfax Lit software
Pocket Unit **£125**; Inte Card **£124**

- RS-232 Cable for above modems **£9**

Archi Comm. Software

- Hearsay 2 £68
- ArcComm 2 £45
- RS-232 Cable for above modems £9

Copy Holders



- Desk Top **£8**; • Angle Poise **£12**

Copy holders as above but with a battery operated, remote controlled cursor/ruler. (By hand or foot pedal.) (Batteries 2 x AA not included.)

- Desk Top **£15**; • Angle Poise **£20**







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Psion Computers



- Series 3 Computer128K £108
- Series 3 Computer 256K £159
- Psion 3a 256K £199
- Psion 3a 512K £239

RAM Solid State Discs (SSD)

- 128K **£48** • 512K **£97** • 1Mb **£199**

Flash Solid State Disc (SSD)

- 128K **£30** • 556K **£48** • 512K **£79**
- 1Mb **£139** • 2Mb **£199**

Communications

- Parallel Interface Link £25
- RS 232 Serial Link for PC £58
- RS 232 Serial Link for Mac £59

Various

- Mains Adaptor 9V AC £12
- Spreadsheet £59
- Professional Finance £42
- Spelling Checker/Thesaurus £42
- Desk Stand £15

Commander Joystick

- Connects directly to BBC B and BBC Master's Analogue port.
- Fully compatible with all BBC Joystick controlled games.
- Switchable springs allow selection of floating or centring operation.
- Trim adjusters for both X and Y axes for fine centre adjustment.
- Convenient stick mounted fire button with additional base buttons.

Price: £15

Beeb PC (BASIC)

Designed for program authors to convert BBC programs to run on IBM PCs.

Price: £38

Beeb DOS

Allows IBM PCs/Compatibles to read Acorn format Discs

£39

Mouse Cleaning Kit

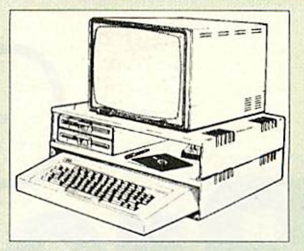
To obtain trouble free operation and prolong the life of your mouse, the high tech rodent requires regular cleaning. Our deluxe mouse cleaning kit is ideal for the purpose **£3**

Archi Mouse Port Splitter

Our handy little splitter unit eliminates the risk of damaging your micro due to constant plugging and unplugging of the mouse by allowing you to connect both, a joystick and a mouse simultaneously to your Archimedes.

£10

Plinths for the BBC Master and A3000



- Single 490 x 310 x 105mm £14
- Double 490 x 310 x 210mm £27
- A3000 Single Plinth (very sturdy & precision made), has a slot on the left for the switch & cut out on the right for 3.5" Disc Drive £15

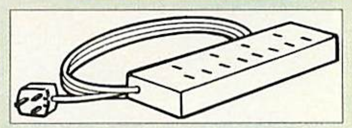
Available in 2 full A4 versions, desk resting and shelf clamping. Paper is held firmly by means of a plastic retaining ruler and a clip grip.

Surge Protector Plug

Fitted in place of your normal mains plug, this device protects your equipment (and data from corruption), against mains high voltage translent spikes/surges caused by lightning or thermostats switching.

Protection for only **£8.50**

4 Way Mains Distribution Socket



4 way top quality mains trailing sockets. Supplied wired up with mains plug ready for use. Can be screwed to floor or wall if required.
Very useful for tidying up all the mains leads from your peripherals. **£9.50**

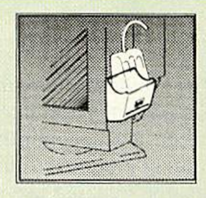
Aries Spike Cleaner Unit

A 4 way mains distribution unit as above with a built-in Surge Arrester, providing protection for your complete Computer/Hi-Fi System **£16**

Watford Catalogue

200 Page full colour catalogue/ Technical Guide now available. Tel 0582 48 77 77 for your FREE copy

WE Mouse House



Treat your mouse to a cosy Mouse House. This handy little gadget solves the problem of where to store your mouse when it is having a rest. Made of sturdy plastic, the WE Mouse House attaches to the side of your computer, monitor, disc drive etc.

Only £3

Spares for BBC Micro

UHF Modulator	£4
Speaker £3; Speaker Grill	£1
Keyswitches	£1
16MHz Crystal	£2
17.734 MHz Crystal	£2
32.768MHz Crystal	£2
Replacement 17 way Flexible Keyboard Connector	£4
BBC Master Power Supply	£69
BBC Master Keyboard	£62
BBC Master Casing	£49
Refurbished BBC B Spares	
BBC B Casing	£13
Clear Perspex Keystrip Holder	£3
BBC B Keyboard	£35
BBC B Power Supply	£49

- Official orders accepted from government, educational establishments and PLCs.
- Shop Hours: 9am to 6pm, Monday to Saturday. Late night Thursday until 8pm. Free customer car park.
- Mail Order Inquiries: 9am to 6pm. Monday to Friday only
- Technical Inquiries: 9.30am to 5.00pm, Monday to Friday

Carriage (incl. Insurance) Charges

	1st Item	2nd & Subsequent Item
Software	£6.00	£2.00
Hardware	£7.00	£5.00
Lasers	£8.00	£7.00
Accessories	£5.00	£2.00
Small Items	£4.00	£2.00

P.S. Many software packages qualify for the small item tariff

For Next Day Working Day delivery service simply double the cost. All charges subject to VAT

Above carriage charges apply to UK mainland only. On export orders, carriage is charged at cost.

Watford Electronics Ltd

Established 1972

Mail Order & Showroom:

Jessa House, Finway, off Dallow Road, Luton, LU1 1TR, England
Tel: 0582 48 77 77 (General) 0582 74 55 55 (Sales) Fax: 0582 488588

Showroom Only:

Jessa House, 250 Lower High Street, Watford, WD1 2AN, England
Tel: 0923 237774 Fax: 0923 233642

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VAT: UK and EC customers: Please add 17.5% VAT to the total cost, including carriage.

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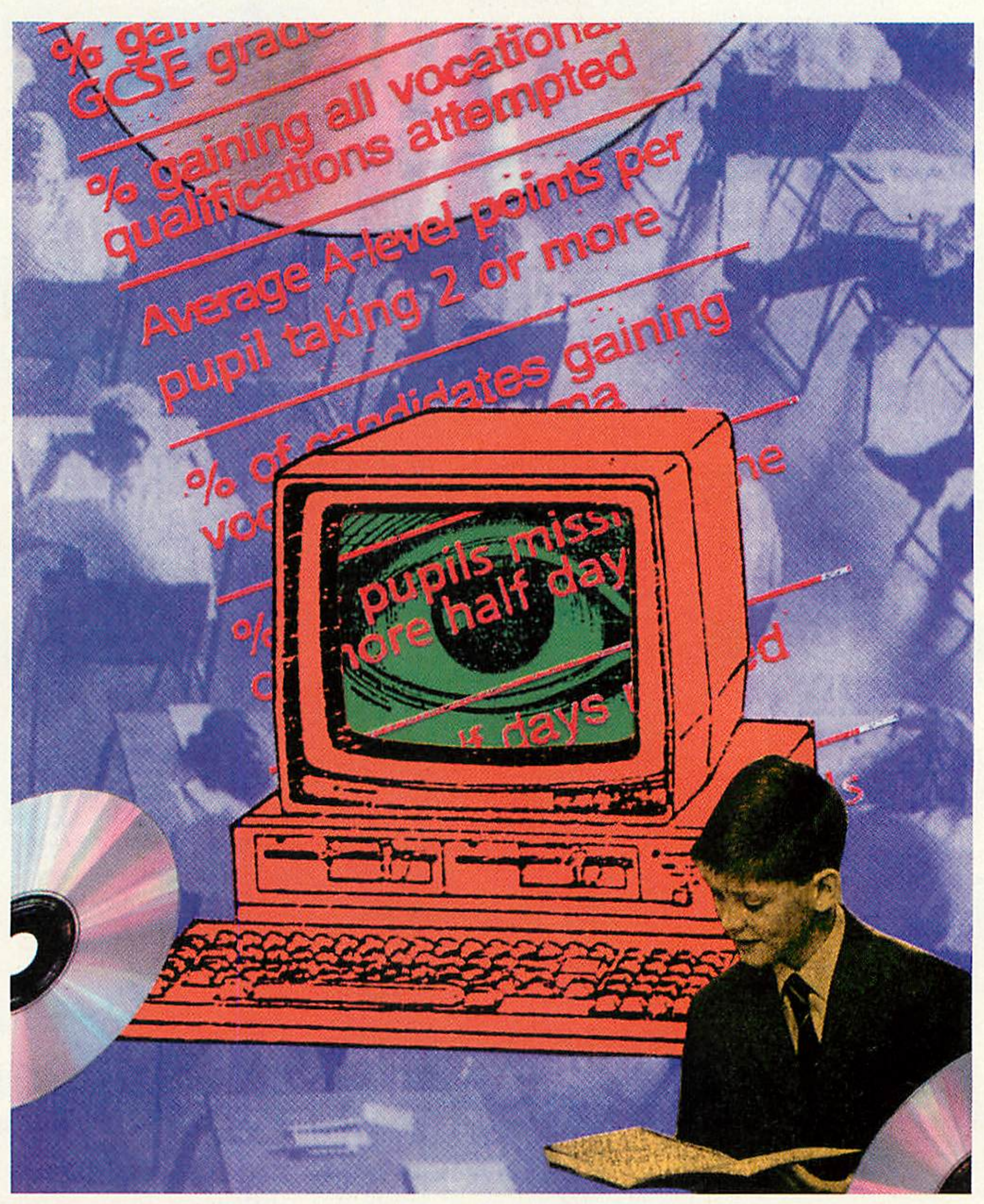
Good Prospects

The pupils of Netherhall School decided to give themselves a multimedia challenge by putting their school prospectus on CD-Rom. Alastair Wells, Head of IT, explains the process

The classroom environment is one of lively interaction between teacher, pupils, text, graphics, pictures, sound and animation, making use of textbooks, speech, video, slides, tapes, artifacts, movement and information technology: multimedia in a nutshell.

Given the right strategies and the right information, teachers and pupils can easily produce multimedia applications that enhance the learning experience in the classroom.

This is what led us to believe that a multimedia presentation of IT within the school is an exciting and impressive alternative to printed materials and provides the ideal opportunity to illustrate the sort of IT activities being carried out by pupils and at the same time display samples of their work. Hence the Electronic Prospectus.



DARREL REES

The Electronic Prospectus

Identifying an appropriate need for a multimedia resource is very important. The school had mapped the use of IT across the curriculum and we were aware of certain areas that had limited or dated resources.

Two years ago this led us to develop the *Battle of the Somme* multimedia application as a cross-curricular resource for our History, English and Drama departments, and the experience was extremely fruitful and the reactions of the teachers and pupils were so positive we knew it was worth pursuing another project.

However, the *Battle of the Somme* project was a large one and we wanted to produce a multimedia application quickly, making use of available resources and some of the latest applications such as Replay.

The school had recently made a promotional video of our sixth form courses for Year 11 pupils considering A-levels, and the idea of merging the video with the traditional prospectus and examples of pupils work seemed very attractive and so work on the Electronic Prospectus began.

The CD-Rom incorporates, text, music, artwork, Replay video sequences and animations. So how did we go about producing this multimedia application on a CD-Rom?

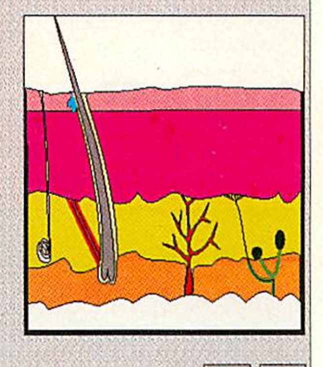
First stages

The first step was to explore what resources we already had available for use and assess the time implications for the project. Fortunately there were a large number of resources available which made the project feasible and helped to reduce the time commitment:

• The text of the prospectus was already held on one of our administration PCs, so all we had to do was to copy the file over on a PC disc, and simply drag it and drop it into *Impression*. We then edited the new document into small paragraphs of text ready to be transferred to the pages of the



It is important to present information clearly and in an appealing way. This is where the power of multimedia really comes into force.



electronic prospectus.

• We then transferred the sixth form video to the computer using a Replay DIY card from Irlam Instruments, and edited the video clips using *Empire* from Uniqueway. Capturing and editing of images can only be carried out on an A5000 or A540, preferably with 4Mb Ram, but once captured the images can becompressed into Replay format, and these Replay movies can be used on any of the Archimedes computers.

• Examples of pupils' work were collated, including text, *Draw* files, sprites and music.

• Some of the sprites were animated using Iota's *Animator* software.

• Some of the *Draw* files were animated using Oak Solutions' *Tween* software.

While we were collating all the resources, we created a paper design which mapped out the structure of the CD-Rom. In the case of the Electronic Prospectus this structure was almost identical to the index page of the original printed prospectus.

Indexing the prospectus

The index page of the Electronic Prospectus provides routeways of investigation chosen by the user. They can read a letter from the headmaster or choose to view any A level course available in the sixth form. In addition there were other aspects that we wanted pupils to know about such as private study, leisure and sports facilities.

The section on A levels would probably be the key routeway for most users and so we gave this its own index page which linked back to the main index.

With the structure in place we were able to assess whether or not we had sufficient resources to make the pages look lively and interesting and whether we had to find or create new materials. Naturally we required additional resources and again we looked to see what was on hand. This included:

• Floppy disc-based clip art purchased from Micro Studios and Sherston.

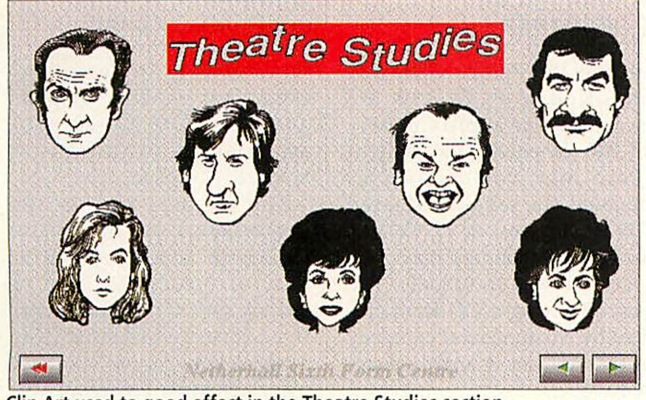
• Clip art from the Image Warehouse and Revelation CD-Roms.

• Resources downloaded by modem from Campus 2000 such as weather satellite images from the Hampshire database.

• New materials created to order by the staff and pupils.

We shared the task of searching for resources between pupils and teachers, and neatly collated the information in directories on the main authoring computer. This computer needed to have as large a hard disc as is possible, particularly for storing Replay movies.

We used an A4 portable which provided flexibility for collecting materials, portability for taking home in the evenings for extra work as well as an easy way of taking the final product to the company making the CD-Rom.



Clip Art used to good effect in the Theatre Studies section

Authoring

With the resources in place the actual authoring could begin, and choosing the right software to meet our need was important. There are some excellent multimedia authoring packages available such as *Key Author*, *Magpie* and *Genesis*. We used *Genesis* to author the Prospectus as we have a school site licence for the software and support materials.

The first step in authoring is to design the master frame, in other words the frame with a common theme containing the control buttons, a background colour or texture, text style and window frame options such as no scroll bars, quit box and so on. It is not always necessary to have the same page repeated throughout the application but generally it makes for faster authoring and a more professional look.

We used three buttons on our pages to control movement through the Prospectus: a previous page, next page and return to index page buttons. We designed a light grey patterned background sprite for most of the pages, and in addition we also created frame links between pages to offer the user a greater number of exploration avenues.

Having assessed the amount of text to be incorporated into the Prospectus we knew roughly how many pages to create and so the master page was copied 130 times, the links between pages automatically being created by the next page and previous

page buttons.

A skeleton electronic prospectus was now created which simply incorporated text with no graphics, movies or animations. We loaded in the text by multitasking with *Impression* running alongside *Genesis*. Appropriate text was highlighted and copied into frames on the appropriate pages of the Electronic Prospectus.

Moving to CD

The skeleton application will usually fit on a 1.6Mb ADFS disc. Additional resources to be used on the pages such as sprites, music, animations etc can be stored on floppy discs and added later, perhaps to a large hard disc or magneto optic disc when the CD is made. Ideally however it is best to compile the whole application so that it can be tested and evaluated before the CD is created.

Eesox provides a CD Simulator which allows you to create a CD-Rom image of your application to any storage media. The CD Simulator allows you to test your application and its data as if it was running directly from a CD-Rom drive, with CD-Rom data transfer rates and seek times, a useful facility prior to creating your own CD-Rom.

We made each section of the electronic prospectus as lively and as interesting as possible. Each section has its own title page. The Art title page is a sprite created by a pupil and the Design Communication page shows a combination of clip art resources used to good effect.

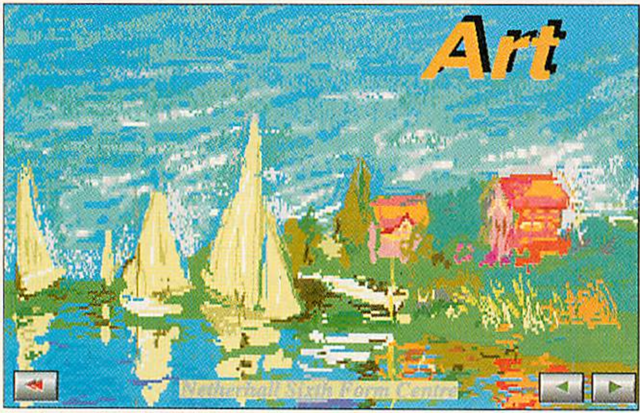
The Theatre Studies title page was created using Sherstons *Split an Image* clip art collection of Film and TV stars, and the sports page shows a Replay movie of students working hard in our multi-gym.

Once we'd created the pages the next step was to link the frames and thoroughly test the application and this led to a final edit of some of the pages, graphics and text.

To preserve the copyright and site licence agreements it is important to ensure that the authoring software is not transferred to the CD-Rom, from which it can be easily copied. Most authoring software packages have a utility that allows the application to be used but not edited. In the case of *Genesis* this is called *Browser* and we installed this in the root directory together with a system folder and *ARPlayer* to run the Replay movies.

If the CD-Rom is to be marketed, you need a licence from Acorn to distribute the system folder and *ARPlayer*. A licence agreement is also required if other copyright resources are to be used,such as outline fonts. It is also important to ensure that anything you use is your own copyright or has written permission from the holder of the copyright or is a public domain resource.

The final stage is to transfer the whole application from the authoring computer to the CD-making system, and to do this we used an Atomwide SCSI interface which connects any SCSI device to the parallel port of the computer. We transferred the Electronic Prospectus to a Magneto-Optical drive.



The Art section, drawn by a pupil

CD Recordable machines such as the Philips CDD 521 and Kodak PCD 200 are expensive at approximately £3,500. Hopefully the price of these may come down as demand for school authored CD-Roms rises, or IT Centres around the country may provide a service to schools. The cost of having a CD-Rom created by a commercial company at the moment is approximately £175.

The Electronic Prospectus is now resident in our school library for pupils to explore, and the whole project took approximately six weeks, or 40 hours, to complete.

One thing that really impressed us was the relative ease with which a CD-Rom can be produced. We've already started work on authoring a cross-curricular Key Stage 4 application, and have plenty of ideas for future CD-Roms.

Useful addresses

Software

Genesis and Tween
Oak Solutions
Suite 25
Robin Enterprise Centre
Leeds Road
Idle, BD10 9TE
(0274) 620423

Animator
Iota Software Ltd
Iota House
Wellington Court
Cambridge, CB1 1HZ
(0223) 566789

Impression II
Computer Concepts
Gaddesden Place
Hemel Hempstead
Herts, HP2 6EX
(0442) 63933

Empire
Uniqueway Ltd
143 Allensbank Road
Heath
Cardiff, CF4 3PQ
(0222) 644611

CD-Roms

Revelation CD-Rom
Longman Logotron
124 Cambridge Science Park
Milton Road
Cambridge, CB4 4ZS
(0223) 425558

Image Warehouse
CD Technology
Unit 8
Hurlands Business Centre
Hurlands Close
Farnham
Surrey, GU9 9JE
(0252) 717520

CD-Rom mastering services

ESSOX
5 Hillfield Road,
Comberton
Cambs, CB3 7DB
(0223) 264242

Cambridge Multimedia
St Andrews
North Street
Burwell
Cambs, CB5 OBB
(0638) 743121

Hardware

Replay DIY Card
Irlam Instruments Ltd
Brunel Institute for Bio Engineering
Brunel University
Uxbridge
Middlesex, UB8 3PH
(0895) 811401

SCSI Interface
Atomwide
7 The Metro Centre
Bridge Road
Orpington
Kent, BR5 2BE
(0689) 838852

Clip art

Sherston Software
Swan Barton
Sherston
Malmesbury
Wiltshire, SN16 OLH
(0666) 840433

Micro Studio
22 Churchgate Street
Soham
Cambridgeshire, CB7 5DS

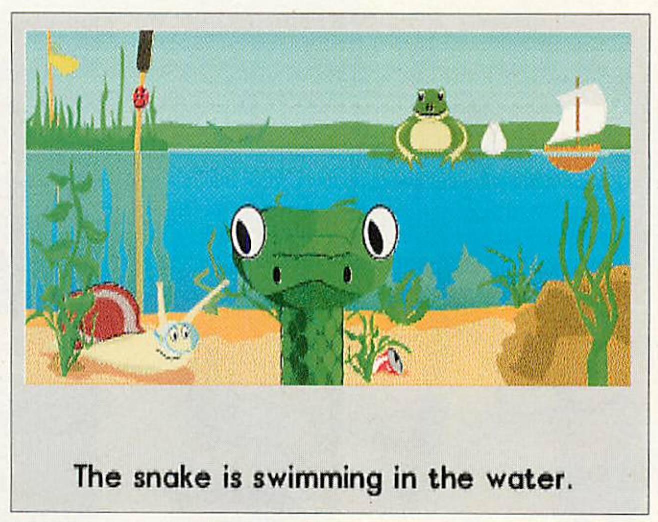
Explore with Flossy the Frog

Supplier: 4Mation
Tel: (0271) 22974
Price: £28.79 inc VAT

Hoping to join Jeremy Fisher and Kermit in the ranks of famous frogs is Flossy, who makes her debut in a new program from 4Mation.

Billed as 'interactive fiction' and intended for use with children at home as well as key stage 1 pupils in the classroom, *Explore with Flossy the Frog* consists of nine scenes, including a beach, a bedroom and a spaceship. If you click just about anywhere in any of them, something happens and related text appears at the bottom of the screen.

This concept is well-established on the PC and the Mac, and in fact 4Mation is currently developing versions for these platforms. However, I have to say that I found Flossy compared rather poorly to some of the titles I have seen in other formats, especially the excellent Broderbund CD-Rom *Just Grandma and Me* (a couple of the actions in the *Flossy* beach scene are actually quite similar to those in *Just Grandma*). Flossy herself is not the most appealing of heroines; the narrative, such as it is, is not particularly engaging; and the scenarios are slightly bizarre. For example, in the spaceship, Flossy encounters Poppet, who is apparently a Puppet person but looks more like a Woodentop, and a son-of-R2D2 robot called Toppy with a mania for cleaning.



Flossy the frog: not quite star quality

The animations are multi-tasking, so more than one thing can be happening at once, depending on how much memory your machine has, and although the program doesn't use recorded speech, the sound effects are good.

Along with talking points and questions related to each location, the teachers' booklet contains notes on some of the available 'cheats' but a complete list would have been more useful. The environment is a safe one. Random clicking doesn't crash the program but it can lead to loops and dead ends, for instance I couldn't get out of the spaceship into the kitchen, despite several sessions with the package.

4Mation has ambitions for its amphibian and is planning to produce the program in several languages, including sign language. Flossy may also spawn a version in which the text is replaced by Rebus symbols.

Ultimately, the company envisages that she will appear on a number of CD-Roms, instead of the three standard computer discs it currently comes on. These are high hopes indeed, but a resource such as this sinks or swims on the strength of its storyline and characterisation and, to my mind, *Flossy the Frog* doesn't have that star quality.

Alice Smith

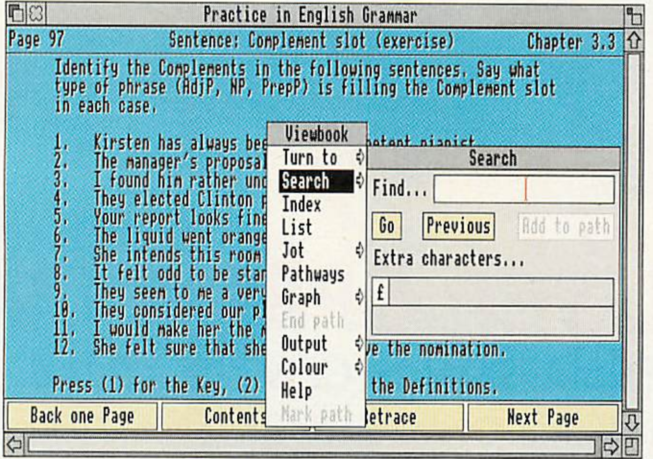
Practice in English Grammar

Supplier: Information Education
Tel: (0782) 281643
Price: £25 to £65 depending on institution size

The concept of Viewbooks, of which this is one, is that they use the structure of conventional books – pages, in other words – because people are familiar with the 'access methods' required by this medium. Hmmm.

Here the topic is that hobby horse of Tory ministers: English grammar. There are two principal sections. The first is a comprehensive set of definitions. The second consists of exercises directly related, and cross-referenced, to the first.

There is also a key to the exercises, which contains the answers, but if this is being used for testing purposes, it is almost too easy to flick to. As you might expect from a Viewbook, you move through the pages or return to the contents list by clicking on-screen buttons. There is also a retrace function which takes you back through the pages you have worked on.



Does this type of exercise make you love your language?

Pressing the Menu button on the mouse produces a number of options, ranging from conducting a search for a particular point to changing the colour of the background or foreground. There is a jotter, too, where you can make notes, although oddly you input text in a box and enter it, rather than typing directly on to the blank page/screen.

The grammatical information at the core of this program, however, is presented in an extremely traditional, nay dull, way – screen after screen of system font text with no graphics whatsoever for light relief.

Sometimes the going does get a bit heavy, and I quote: 'An interrogative sentence differs from the declarative in having an inversion of subject and operator and the placing of an interrogative word initially, if present...'

OK, so maybe grammar learning isn't supposed to be fun but in these days of whizzy multimedia resources it could be made a little easier.

There's no way I would dream of casting aspersions on the worthiness of this package, written by the no doubt eminent Howard Jackson, professor of linguistics and English language at the University of Central England in Birmingham. I

It is, presumably, aimed at key stage 4/post-16 students and adults and would be a useful reference manual, but its approach to promoting a greater understanding of grammatical structures is unlikely to generate a love of language itself.

Alice Smith



Fifty Things to do with Databases and Spreadsheets

Supplier: Centre for Statistical Education
Tel: (0742) 768555, ext. 4117
Price: £15

What can I say? The title of this book says it all. Essentially it's a collection of worksheets covering datahandling in a number of key stage 3 and 4 curriculum areas: English, foreign languages, geography, history, maths, science, technology, religious education and home economics.

All can be photocopied and are accompanied by teachers' notes on the activities. These follow no set format but offer approaches and provide references to other materials purely as appropriate.

By and large, the ideas for project work genuinely use datahandling and extend work in the target subject. For instance, one of the suggestions for geography is to use a spreadsheet to decide where to build a theme park in the EC, a car factory in the UK, a regional shopping centre or a local café.

Students would go about this task by looking at the factors which affect location, ranking particular sites and entering the scores on a spreadsheet. As the book points out, the ability to order information and do routine calculations makes a spreadsheet a relevant tool here.

Another of the suggestions, for history this time, requires a database on Roman emperors, but where this publication really scores is that it actually provides the information in printed form, so that it can be entered on the computer. It doesn't, however, bother giving census information because that is freely available elsewhere. Again, author Mike Hammond knows what is appropriate.

In addition to some fairly sophisticated uses of IT for maths, some varied ideas for technology and even a couple worksheets for RE, there is a useful section on administration with activities for record-keeping and budgeting. These could be employed with student teachers or for INSET.

Although it is self-consciously non-platform specific, and despite the fact that Excel is one of the packages referred to, *Fifty Things* does lean towards software which runs on Acorn machines, mentioning, for instance, *Grass* and *Key Plus* as example databases. It would, however, be a very worthwhile purchase for any IT co-ordinator keen to stimulate and extend his or her staff's use of datahandling.

Alice Smith

NetManage

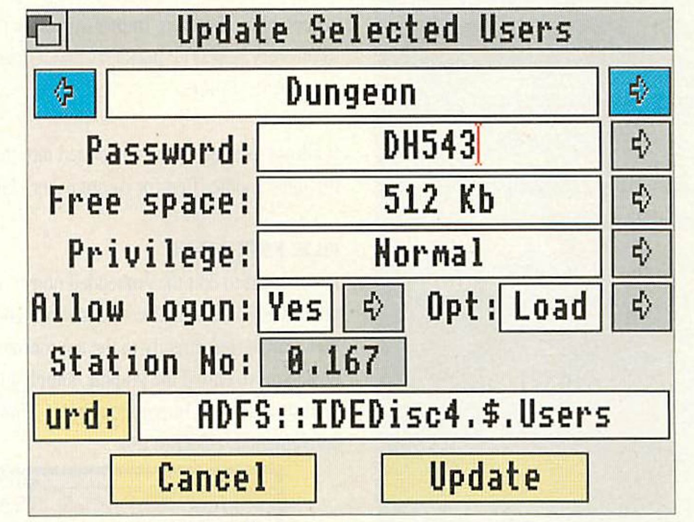
Supplier: Suitable Software
Tel: (0638) 720171
Price: £50

As anyone who has used Acorn's *Manager* software to set up and manage their network, it can be quite a trying business. *NetManage* from Suitable Software should prove a boon to anyone organising a multi-user, multi-group networking environment.

NetManage deals with groups of users in a much more effective way than *Manager*. In *Manager*, all the users on a particular fileserver are shown in one big window, but in *NetManage* they are laid out hierarchically, allowing the network manager to perform actions on groups of users, rather than just being able to delete them as with *Manager*.

The result of this is you can create collections of users which reflect your school environment, such as having one group for each class, one for staff and so on.

You can also change individual user characteristics in a much more flexible way than with *Manager*, as well as being able to display passwords, very helpful if your pupils keep forgetting theirs. Similarly you can alter characteristics of groups of users, which avoids the tedious 'one at a time' method necessary with *Manager*.



Updating the attributes of a group of users

Probably the most important and useful function which *NetManage* provides is the ability to 'tickle' your users. Apparently this is an Australian expression, which hardly does justice to the flexibility of this feature.

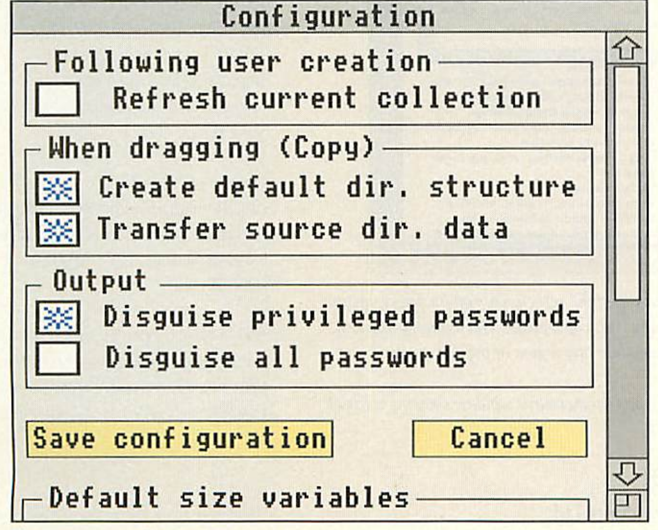
With tickling, you can copy files into the user root directories of any groups you wish, delete files, copy files out (to take home for marking, perhaps): you name it, it can be done, as the process can use any operating system commands on the files in the URDs.

Another handy feature is the ability to set up standard directory structures which is created each time a new user is added to the network. This ensures that all the files a pupil needs are there straight away, and can save a considerable amount of time if the structure is complex.

Overall, NetManage is very useful, and it's impossible to cover all its features in such a small space.

Compared to the cost of networks, £50 is not a lot to spend for this flexibility, and as it works on all Level 3, Filestore and Level 4 fileservers, it should be considered by all Acorn network users who need to organise a lot of users.

Mark Moxon



The various configuration options

The word processor for Acorn RISC computers

Impression Style is a new word processor combining the best points of all earlier word processors with many powerful features new to the Acorn platform. Impression Style is a word processor suited for all users - the occasional letter writer, student, small businessman or professional writer. It also incorporates many DTP features so that it can handle complex page layouts with ease.

Word Processing

Impression Style is a capable and very powerful product but it is also an extremely easy to use word processor. In order to make it simple to use, we have incorporated the very latest software technology, found on no other Acorn word processor, including two types of on-line help - interactive help and full hyper-text help. Not only can you tell at a glance what all the controls and menus do, there is comprehensive on-line documentation explaining the features. Simply double clicking on a topic or keyword will display an explanation - and of course you can do this on screen while using Impression Style.



It also offers drag and drop editing - the simplest, most intuitive way to edit documents. There is an integrated thesaurus and dictionary with definitions (another first for Acorn machines) both based on the highly respected Collins publications. Impression Style is the wordsmith's dream come true.

Modern word processing involves much more than creating and editing long text files - producing monospaced typewriter-like documents is often no longer acceptable. Therefore Impression Style offers page layout capabilities second only to the very best DTP packages and it does this without compromising the word processing abilities.

It allows graphics to be embedded into the text or placed anywhere on the page and includes another first for Acorn users - OLE or Object Linking and Embedding.

OLE EXPLAINED

If you want to edit the embedded object (this is usually a graphic, but it could be other data such as a table or equation) you simply double click on the data, which is then transferred directly to the appropriate editing application - for example !Draw. Once you've edited the graphic, simply closing the window will transfer the data directly back into Impression Style. This powerful technique couldn't be more convenient or easier to use.

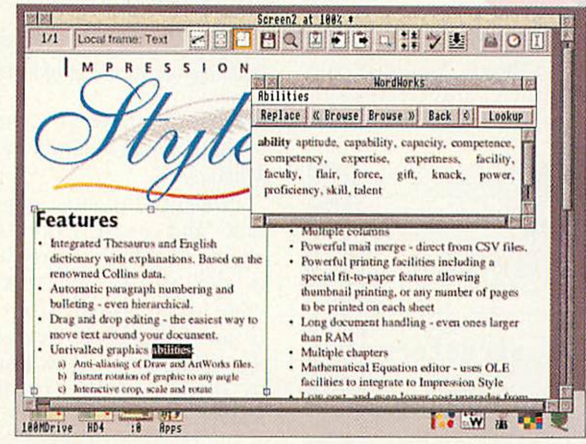


Illustration shows new button bar enabled at the top of the screen. This offers direct, instant access to commonly used functions such as saving, cut, copy, paste. One button is the new zoom tool which allows ArtWorks style drag-zoom into any region of the document.

It also shows a word selected in the text and the pop-up thesaurus window showing a list of synonyms. Note the smart selection of root word.



Computer Concepts Ltd

GADDESDEN PLACE, HEMEL HEMPSTEAD, HERTS HP2 6EX. TEL.: 0442 63933 FAX: 0442 231632

EMAIL: Info@CConcepts.co.uk.

There isn't room to cover all aspects of Impression Style, but some other features include:

- Impression Junior, II, and Acorn Advance file compatibility.
- Integrated WordWorks thesaurus and dictionary.
- Automatic section and paragraph bulleting, numbering and re-numbering.
- Support 24 bit, full colour images.
- An open, extendable graphics filter system with TIFF loaders.
- Low cost upgrades from other word processors.
- Mathematical equation editing, master pages & styles.

And the best feature of all:
All this costs only £99 + VAT (£116.32 incl.)

A full specification is available on request.

HOW TO UPGRADE

Copies of Impression purchased from Computer Concepts after 1st September 1993 can be upgraded without charge.

All registered owners of Impression Junior and Impression II, can upgrade to the full version of Style, including dictionary/thesaurus, by quoting the registered serial number.
£29.00 + VAT (£34.07 incl.)

Existing Impression II owners can upgrade to Impression Style for £29.00 + VAT but a further upgrade to Impression Publisher, when it is released, will cost another £29.00 + VAT (£34.07 incl.)

Owners of other WP and DTP packages can also upgrade to Impression Style. Return the key/master/N° 1 disc of your existing package with £70.00 +VAT (£82.25 incl.)

* This offer is open to owners of the following packages: Wordz, Ovation, First Word Plus, TechWriter, EasiWriter, StartWrite and Advance.

Take it easy with C

Risc Developments has just released a cost effective C package. Nick Craig-Wood likes its hand-holding style

The only real option for programming in C on the Acorn range up until now has been the C compiler from Acorn itself, which is very good but has the disadvantage of costing over £250.

However, Risc Developments has come to the rescue with its new *Easy C* package costing less than £60. This includes a full ANSI C compatible compiler and Arm assembler, and provides a Wimp front end for the compiler and linker and a *Make* utility for project management.

The product is clearly aimed at the new C user and to that end there is a tutorial explaining how to use the compiler and some of the differences between Basic and C.

The tutorial tries to cover a lot of ground from the simple 'Hello World' program to pointers and structures – all in about 40 pages. It is not totally successful, but will provide a reasonable starting point for using C, especially if combined with a good book. What may be useful if you are new to C are some code fragments in both Basic and C.

Using Easy C

To create a program you first need to write your source code in a text editor. *Edit* does just fine, but it is useful to have an editor which can handle throwbacks from the compiler, such as *Zap*, *StrongED* or *DeskEdit*.

Throwbacks enable the compiler to open your source listing to the place where it thought there was an error, and understandably they're a great boon to programming.

To compile a simple project it is only necessary to drag the source files to the *Easy C* window and click on the compile button. For more complicated projects *Easy C* can use a *Make* file for its own project management utility.

Make is invaluable for large projects as it saves the compiler compiling bits of your code which don't need to be compiled again; *Easy C* can also generate *Make* files automatically. As far as other compiler options go, there is an advanced setup window for setting values such as the level of optimisation, the level of error reporting and what type of C the compiler expects.

To link your object files to produce a program that can be run you only need to click the link button after your code has compiled. Alternatively *Easy C* can be set up to link automatically after compiling.

The end result

The output of all this compiling and linking is a file of type Absolute which can be run simply by double-clicking on it, or by running it from the command line or from an Obey file. *Easy C* cannot create modules as yet, nor can it produce overlayed code (which is useful for running programs on smallmemorymachines). Another important point is that *Easy C* does not come with a debugger. However, it does provide good interactive help, which is useful if you forget what option does what and you can't be bothered to look through the manual.

I have a few niggles with the compilation/linking process. The *Easy C* application loads a large (206K) module which it does not remove when you quit the application. Occasionally it might be useful to have it loaded for command line use, but when you quit *Easy C*, the default ought to be to kill the module. It would also have been useful to have a button to bring up the setup window rather than a menu option; also a menu option to clear the current project would be handy.

Easy C doesn't appear to close its throwback session after use which is annoying for *Zap* users since it means the throwback windows ask for confirmation when closed

Speed tests

To test the speed of the Easy C compiler against the Acorn C v4 one, I compiled a number of test programs with each package. First, the ubiquitous Dhrystone test (v2.1)

The results of this test are somewhat dubious though, for

	Normal	Register
Easy C	9,625 (6K)	9,569 (6K)
Acorn C v4	16,611 (9K)	16,611 (9K)
Easy C/Acorn %	58	58
Results are in Dhrystones/second		

Results of Dhrystone 2.1 tests

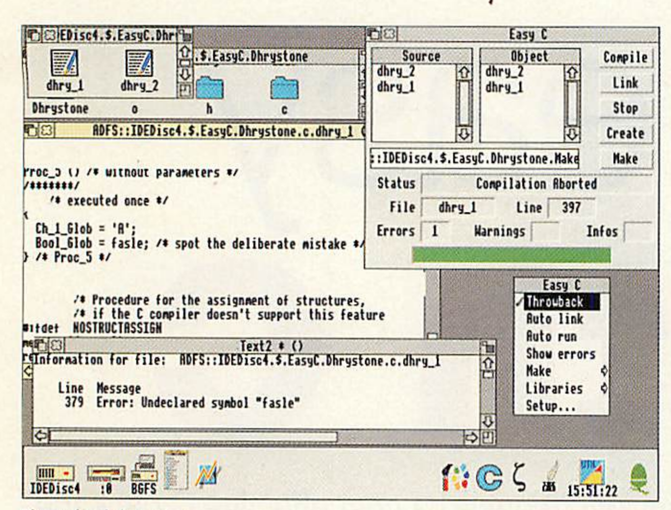
Easy C advanced setup

- [x] Report Warnings [x] Report Informationals
- Include path:
- #define: "HZ 100", MSC_CLOCK, "CLK_TCK CLOCKS_PER_SEC"
- [ ] Create listing: Source, Variables, Includes, Code, Expanded
- Files generated: [x] Object [x] Image [ ] Debug
- Optimisation: [x] Peephole [x] Fold
- Error limit: 20
- Standard: ANSI
- Base address: 8000
- Warning level: 6 - Portable
- Image file:
- Cancel | OK

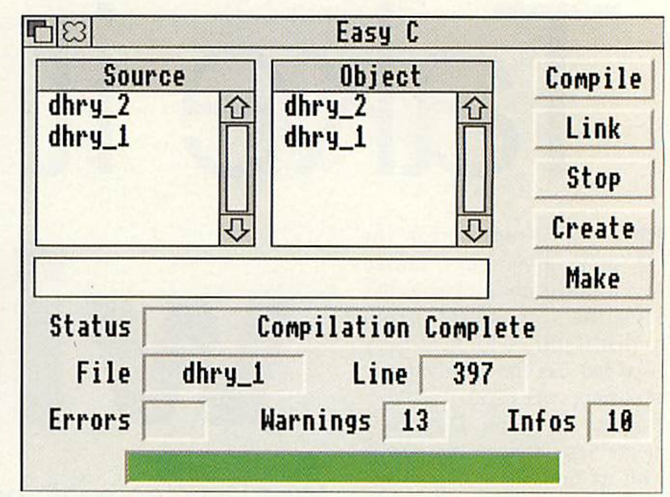
Easy C's setup window

	Lucifer	Goppa	MD5
Easy C	42.43 (5K)	226.18 (12K)	2.12 (5K)
Acorn C	v439.93 (9K)	199.29 (14K)	1.88 (5K)
Easy C/Acorn %	94	88	89
Times are in seconds			

Results of three speed test programs



Throwback in action



The main Easy C window

two reasons. Firstly Dhrystone is not a real application and secondly some compiler manufacturers spend a disproportionate amount of time optimising their compilers so they produce good results!

Next, I compiled some more real world tests using the following programs:

Lucifer: Encrypt a 365K file with IBM Lucifer encryption. The source code for this test is well optimised, hence the small difference between the compilers.

Goppa: Encrypt a 365K file with Goppa public key encryption. This source file is not well optimised.

MD5: Make a file hash from a 365K file. This source code is extremely complicated and blows up the Acorn compiler with full optimisation, so for this test its CSE optimisation (see later) was turned off.

All tests were conducted in the same screen mode on a 26 MHz A5000, and any file access was done from Ram disc. Both compilers had full optimisation turned on unless stated otherwise. The *Easy C* compiler appears to compile code that is about 10% slower than the *Acorn C* compiler but produces smaller executable code. This is probably because of the common sub-expression elimination (CSE) in the *Acorn* compiler which is very good.

The Easy C language

Easy C complies with the ANSI standard and also supports compilation in the older K&R standard.It also includes a number of extensions to the language which can be turned off if desired, such as allowing binary numbers prefixed with 0b (which has always seemed like an omission from the ANSI standard) and automatic argument counting for functions with variable numbers of parameters. The compiler has not been validated to conform to the ANSI standard – which is a long and expensive process – so there may be areas in which it is not ANSI compliant. However, Acorn C has been validated and is reputedly one of the most compliant compilers available on any machine.

The ANSI functions needed by the compiled code are provided by the Shared C Library exactly as they are in Acorn C.

A difference between Easy C and Acorn C is that short integers are 32 bits in Easy C while only 16 bits in Acorn C. This is unlikely to make much difference except for when defining large structures or arrays using shorts to save space; in Easy C no space will be saved.

Easy C and Acorn C object files can be linked together with no problems, except possibly over shorts in structures. This can be demonstrated by recompiling parts of an application with Easy C and parts with Acorn C and could be useful for libraries.

A real bonus point for Easy C is having the Assembler built in to the the compiler; this effectively saves you having to spend a further £175 on one from Acorn.

Writing Desktop

This speed difference would probably make no appreciable difference to the running of a desktop program since most of the execution time will be within the Wimp and Shared C Library. *Easy C* comes with a specially compiled copy of *DeskLib* , a freeware desktop C library. The learning curve for *DeskLib* is steep since it comes with minimal documentation – only the header files.

To learn to use *DeskLib* it helps if you have had experience writing desktop applications before and areexperienced in advanced C (since you will be required to look though other people's code to find out how it works). Having said all that, once you have mastered it *DeskLib* is useful, making writing desktop applications in C easier and more reliable.

It is, of course, possible to write desktop applications in C without using *DeskLib* as you would in Basic. However, most people who change from Basic to C do so to be able to use a good desktop library and a more structured approach.

Easy C and *DeskLib* compiled a medium sized desktop application that I had been developing with *Acorn C* and *DeskLib*, and there were no problems or changes needed to the source code.

Documentation

The documentation as supplied for review was in draft form about 160 pages long. It includes an introduction, tutorial, and sections on the C compiler and *Make*. The most important ANSI libraries are covered, but if you want to discover how to use the more esoteric ones you will need a book on the subject.

There are appendices with detailed documentation of the commands, and a section on the built-in assembler. An omission here is information on the procedure call standard, which is essential if you want to mix C and Assembler.

On the disc there are about 50 example programs including the ones from the tutorial. This will prove most useful.

Conclusion

Easy C is exactly what it claims to be, an easy to use C development system aimed at the lower end of the market. If you want to learn C but are not sure you will like it, need to use C at university or school, or can't afford the *Acorn C* offering, *Easy C* is for you.

Whether you would want to develop commercial applications with *Easy C* is another question. The development environment is pleasant enough, but the tools supplied with the Acorn DDE are more powerful.

On the other hand, the product is not priced for the professional C developer, and does a perfectly acceptable job anyway if you do decide to use it for larger desktop applications.

Easy C deserves to do well, and at the price it represents very good value for money.

Product details

Product: Easy C
Supplier: RISC Developments
Tel: (0727) 840303
Price: £49 + VAT

Sun, sea, sand and Superchoice

Superchoice provides holidays to teach you more about computing, but there's more to it than just fun and games, as our roving reporter Karen Donaghay discovered

As you turn the corner into Osmington Bay, it's hard not to be impressed by the view. A sparkling arc of blue water lies directly ahead and the green expanse of countryside stretches right down the coast to the small town of Weymouth.

Certainly the surroundings are a cut above the average inner-city classroom and this is a fact that Lloyd Smith, director of Superchoice, is only too happy to capitalise on.

'This location has everything we need,' he told us. 'There are historical sites, museums, a fantastic coastline for field trips and loads of attractions like a tank museum and the Weymouth Sea Life Centre.'

Access IT

The location is in fact a small Pontins holiday camp overlooking the bay. Already equipped with an impressive range of outdoor activities – abseiling, archery, buggy racing and so on – Superchoice, owned by the Pontins group, wanted to combine the traditional pastimes of an adventure holiday with the more recent attractions of computer technology. The result was Access IT.

'We want to play a supporting role to teachers in classrooms,' Lloyd told us. 'There are lots of different courses, but the most popular ones are those where the group can have ago at everything.'

This is understandable since Superchoice has some enviable resources, like its permanent abseiling tower. But what does abseiling have to do with IT?

'We get kids to go down the tower with monitoring packs strapped to their backs,' explained Niall McAtasney, the IT manager. 'These can register any change in pulse rate and the children then feed this into an Acorn computer.'

IT in action

This novel idea has now become the centre's party piece and was shown to the Acorn community at large during the Acorn World show in October. Sure enough, when you see it in action – with wide-eyed kids just about to drop down a sheer tower face – it's very impressive. But this is only a small part the Superchoice agenda.

In terms of IT content, Superchoice is at its best when it uses all of its unique advantages, a diverse location and local expertise. For example, one course revolves around a fictional oil spillage into the stunning local bay.

After an initial briefing (in the form of a dummy Reuters news report) the children are given their goal: to create a front page story reporting the disaster. They split up into editorial groups for rival newspapers and make their way down to the local coastline to assess the damage.

LogIT data capture is used to measure pollution levels and the results are fed into an A4 portable. Background information is found during a trip to the local marine centre which includes a briefing from resident marine experts.

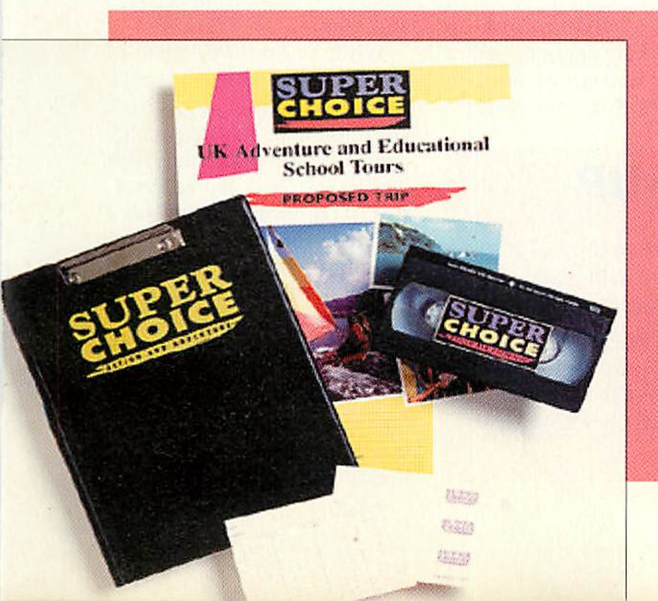
Back at the centre, the articles are written using a combination of collected and CD-Rom information. Canon Ion cameras and scanners are used to provide the pictures and the DTP software allows the students to layout their well-researched articles. Not only is this project ideal for the local setting, it also uses the computer resources in a meaningful way to complete an overall task: mimicking the 'real world' in a very convincing way.

In other cases, the connection between activity and computer is more tenuous.

One example is the way Superchoice use their on-site racing track. The pupils get a taste of the real thing as they whizz around on quad bikes. It doesn't take a child psychologist to work out that this is pretty appealing stuff.

Then this activity is linked to an IT session using control technology and a model car track. Yet, although both experiences are undoubtedly worthwhile, the link is essentially an artificial one. The buggy racing does not contribute to the IT component, it is simply a sweetener for more serious work.

To be fair to Superchoice, this failing does not seem to bother many of the teachers. As Niall said, 'We realise that



COURSE DETAILS

Course prices per pupil are as follows: long weekends from £47, Monday to Friday £99-£137, Full week £111-£145.

Schools or AECs can order an information pack including a video, a poster, a sample letter to parents and extra information.

Superchoice also puts on occasional teacher inspection weekends. The next one is planned for late spring '94.

The family weekend costs £22.50 per adult, and £45 per child although prices are set to rise for the next course.

Superchoice are already making plans to move Access IT to a site in the Isle of Wight and potentially they could also set up in Middleton or Hemsbury.

For more details, ring Superchoice on (0273) 676467.



there is a more tenuous link, but control is an important area to cover and this is one way of doing so.'

According to Superchoice, the most IT-intensive courses are not as popular with teachers, who prefer an even mix of outdoor pursuits and IT activities. If in doubt, teachers can always specify their own course structure. Superchoice liaise with teachers before the course so that particular aspects of the National Curriculum can be attended to.

Choosing a course

'Many teachers find it hard to fulfil the control part of the National Curriculum,' Niall told us. 'The main problem is that control equipment is expensive to buy, so we can help by designing a course which focuses on that particular area.'

At the moment there are four basic types of course to choose from. The first, known as Active IT, is good for fun-lovers and is based around classic adventure activities, like the abseiling described earlier. Other activities like archery or rifle shooting use the Pocket Book to record scores, and later these are loaded into a *Eureka* spreadsheet. While Active IT tends to incorporate a number of different elements, the second option, Project IT, is much more directed. It is based on one key task and provides some intensive IT experience.

Designed by Hampshire technology centre, the project involves reporting on an oil spillage, as described earlier. After putting together newspaper articles, the pupils then look at other issues, which revolve around corrective measure. This could be a look at clean-up equipment or preventative measures such as navigational aids.

The third type of course, Explore IT, has many similarities with Project IT in that it concentrates on using the local environment. One key component of this type of course is its intensive use of the Acorn Pocket Book.

Worksheets are entered into an application called *Explorer* and once again teachers have an opportunity to tailor the questions to their exact needs. Pupils are also given Canon Ion cameras to take shots directly onto floppy discs.

After some preparation, it's out into the big wide world, visiting local sites of interest and compiling project research. The study visits range from the RSPB nature reserve to Bovington Tank museum.

Finally, there is now a completely new type of IT course running at Superchoice. In October, Superchoice piloted a scheme in conjunction with the Sunday Times called The Family IT Weekend. This aimed to 'remove the mystique surrounding information technology and provide a fun weekend.'

Seminars were introduced to explain the national curriculum to parents and the basics of computer technology. Families also had the chance to get some hands-on experience, where, as Niall put it, 'the kids often end up teaching their parents.'

A practical music session with Mike Beecher from EMR was a popular choice – so much so that Superchoice hope to run a special music course in the future. Car enthusiasts tuned up for the Grand Prix using the *Cars in Motion* package from Cambridgeshire Software House.

Finally an IT photo session showed parents and children the easy way to transform a screenshot into a work of art, using Longman Logotron's *ImagePro* package.

Yet despite its success, according to Niall, there are no immediate plans to re-run the scheme. 'We definitely want to do more family events – all our visitors rated the weekend very highly – but at the moment we are not sure when that will be.'

When it does happen again, a number of changes seem likely. The seminars were rated very highly by the parents so there will be more provided next time round. Another area which may well receive more attention are the facilities and catering. Most families expect a degree of luxury on a weekend away and Superchoice at the moment are more suited to catering for school groups.

Of course this is only to be expected: Superchoice is primarily an education specialist. It knows exactly how to keep groups of kids amused, with a nightime line-up of bonfire singalongs, discos and quizzes, but is less surefooted when it comes to adult entertainment.

As part of the parent's weekend there was an act booked for Saturday night. The only problems is that listening to Delilah and other golden oldies may not be everyone's idea of fun. Luckily, the local area has more than their fair share of cosy pubs and restaurants.

Other facilties were standard Pontins fare. Accommodation is in holiday chalets (and yes, it does bring to mind the inevitable Hi-Di-Hi jokes) but



once inside, the chalets are warm and comfortable, with en-suite showers and televisions. Food is not up to restaurant standards but is plentiful and quite palatable.

Conclusion

All in all, while Superchoice may not be every parent's idea of a luxurious weekend in the country, most visitors did seem to have a good time and learn something as well. But the area in which Superchoice really excels is definitely the education IT area: for most teachers this venture will come – quite literally – as a breath of fresh air.

While it would be good to see the links between the IT work and the activities strengthened, the Project IT course is brilliant, being both well-researched and relevant. But it remains to be seen whether this is the popular option for most teachers. They may prefer to take it easy for a few days, away from the pressures of daily school life.

Whatever the emphasis, Access IT does seem like an idea whose time has come and it certainly beats another week in that stuffy ol' classroom.

THE ACORN LINE-UP

The Osmington site is well equipped with Acorn machines. The computer centre has 12 4Mb Acorn A5000s, connected via an AUN network with an A5000 fileserver plus one multimedia CD-Rom expansion unit.

In addition each IT room has access to four colour printers, an Iota colour scanner, A4 portables, Acorn Pocket Books, a spritemaster imaging system for use with the Canon Ion cameras and Oak recorders. For control purposes there are Phobox control boxes and Lego control equipment.

GAME SHOW



Even bigger than the January sales, Birds of War is absolutely massive

You've seen The Fourth Dimension's advert and *Birds of War* looks damn good, right? But, come on, what's this? Thirty-two completely different planes simulated... 192 missions... 40 weapon types, in a game written by the same guy – John Whigham – that wrote the abysmal *Olympics* and *White Magic* four years ago. Are they serious?

Well, let me tell you this: *Birds of War* is rip-roaring stuff and something happened to John Whigham that turned him into some sort of genius. *Birds of War* is smoother than China silk, deadlier than a rattlesnake and so much brilliant fun that you'll probably faint. Buy it.

Sim City cheat

Ask any true person-of-the-nineties to name the two most important things in life and they'll say, quick as a flash, power and money (ice-cream and chocolate fudge cake go without saying).

In *Sim City*, power is easy; you just have to completely abuse it at the expense of the citizens in your town to immediately feel incredibly big and powerful.

The trouble is money, because citizens don't like power-mad mayors and they move away – with their taxes. But now, thanks to Jonathan Brown of Chingford, London, you can have both, because Jonathan's program takes your existing city file and adds wads of cash. Just type in the program in *Edit* (as a Basic file) and save it to disc, changing line 50 to the full filename of your own city. Then run it to get rich quick!

If only it was as easy in real life...

```
10  file%=OPENUP("ADFS::
    MyDisc.$.Games.MYCITY")
20  INPUT"Cash (up to £2,
    147,483,647): £"Cash%
30  Byte4%=Cash%MOD256
40  Cash%=Cash%DIV256
50  Byte3%=Cash%MOD256
60  Cash%=Cash%DIV256
70  Byte2%=Cash%MOD256
80  Byte1%=Cash%DIV256
90  PTR#file%=3108
100 BPUT#file%,Byte1%
110 BPUT#file%,Byte2%
120 BPUT#file%,Byte3%
130 BPUT#file%,Byte4%
140 CLOSE#file%
150 END
```

Stop Press

Here's the last minute lowdown on Christmas releases.

• *Heimdall* and *Lemmings 2* will be ready in time for Christmas, according to Krisalis, which had to pull out of the Acorn World show because it had nothing new to launch.

Said Krisalis' Tim James: 'We thought we'd have *Heimdall* ready, but programming it was like unravelling a piece of string. The game is just huge.' *Heimdall* should be out by the time you read this – on five discs!

• We reported last month that that funny game *Simon the Sorcerer*, from Gamesware, might not make it this year due to technical hardships. Rubbish, says Gamesware, it was just a temporary hiccup and Simon will be making us laugh by December 14th...

• Finally, if you're completely stumped on what to buy, here's my personal Christmas recommendation: *Ixion*, the 3D 'hands-on' adventure. It's just been re-released by Gamesware and it'll keep you hooked for weeks, I promise.



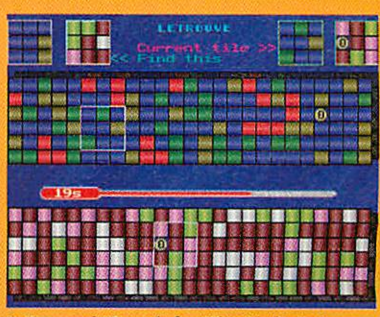
Simon the Sorcerer will definitely be available by Christmas. Yippee!

Bargains galore

Four games for the price of one *Play It Again Sam 3* from Superior Software is ready, it's out, you can buy it for Christmas and here's what you get for £24.95: *Top Banana*, a far-out psychedelic platforms game; *Zelanites*, the addictive born-again space invaders; the cheapest golf game around, *Superior Golf*, which has a course designer built in; and finally, a new game called *Letrouve*.

This is a cunning puzzle in which you must locate a particular pattern of coloured squares among a jumbled mass of them before time runs out. Great if your IQ is really high, unlike mine.

On the subject of bargains, do you want to buy a Krisalis offering for under a tenner? Then check out the new budget label BUZZ on (0709) 372290, for copies of *Manchester United*, *Swiv*, *Mad Professor Mariarti*, *Revelation* and *Jahingir Khan's Squash* at only £9.99.



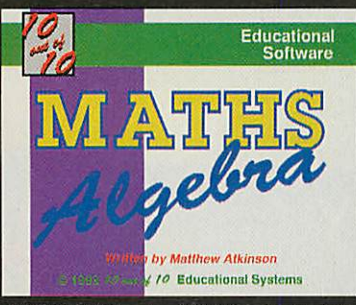
LeTrouve is French for 'The Find'. Quite appropriate, really

The Fourth Dimension

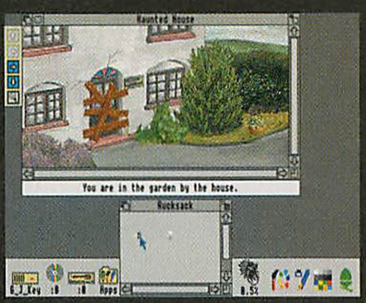
THE 32-bit Acorn Games SPECIALISTS

The following software is compatible with all Acorn 32-bit computers and standard monitors / TVs


Stunt Racer 2000 – £34.95

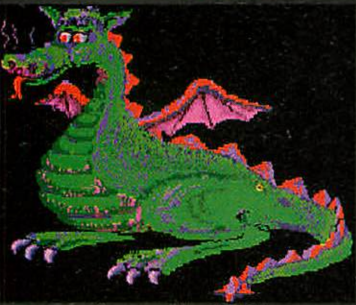


10 Out Of 10 Range – £25.95 Telephone for Details



Haunted House – £25.95


Birds Of War – £34.95


Demons Lair – £25.95



The Dungeon – £34.95 Requires 2 or more megabytes

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For every 2 products which you buy direct from this advertisement, you can ***DEDUCT £15*** from the total cost.

HOW TO ORDER:

Simply send us a quick letter or give us a ring telling us the software you would like, your computers memory *(i.e. number of Mb)*, your name and address and payment via cheque, postal order or Access / Visa card details. Prices include VAT. Postage and Packing is FREE in the UK. Overseas add £3 per product.

BUT HURRY!

THIS OFFER ENDS

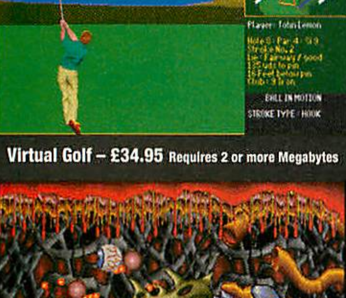
31st DECEMBER 1993

FOR FULL DETAILS OF THESE GAMES, OUR FULL '10 OUT OF 10' EDUCATIONAL RANGE AND OTHER OFFERS – RING NOW FOR OUR *New* 16 PAGE FULL COLOUR CATALOGUE

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Virtual Golf – £34.95 Requires 2 or more Megabytes


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The Real McCoy Vol 2, 3 & 4 – £34.95
Telephone for details


Carnage Inc. – £25.95


Sylvia Layne – £25.95

SPECIALIST Acorn Software for all 32-bit RISC Machines

The Fourth Dimension, 1 Percy Street, Sheffield S3 8AU.
Telephone: (0742) 769950 or 700661.

VISA Access


Black Angel – £34.95



Enter The Realm – £25.95
Requires 2 or more Megabytes

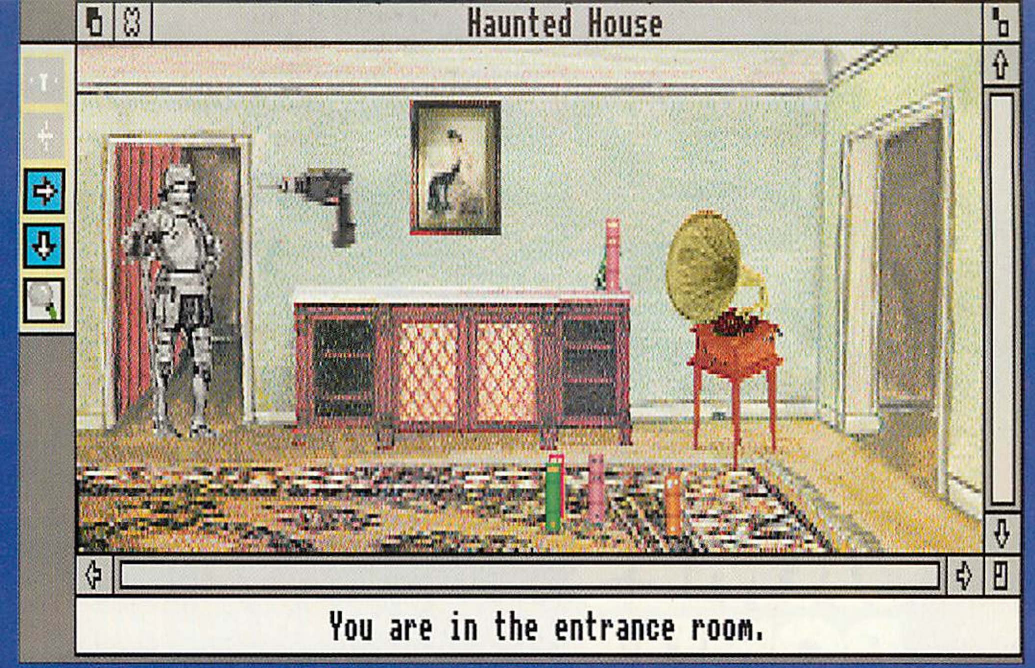


Pandora's Box – £25.95
Requires 2 or more Megabytes


Chocks Away Compendium – £34.95
Upgrade for £10 – Requires 2 or more Megabytes



Break 147 & Superpool – £34.95



Your average haunted house: Suit of armour, gramaphone, Black and Decker drill...

HAUNTED HOUSE

Supplier: The Fourth Dimension
Tel: (0742) 700661 or 769950
Price: £25.95
2 Mb Ram required

I've never seen a ghost but I know they exist because strange things keep happening in my house. Last week a precious bowl was mysteriously found broken and all those interrogated say they knew nothing about it – funny that; likewise when my McVitie's chocolate digestives went astray at the weekend, nobody knew nuffing.

The most recent really-weird-thing is my Acorn computer that keeps eerilyre-setting itself when I try and load *Haunted House*. Oh no, silly me, that one's explainable: *Haunted House* is just badly written. Ho hum.

Apart from loading difficulties though, *Haunted House* is terrific. It's a graphical adventure game that runs as a desktop application like the old *Wimp Game*, but it's much, much better.

All the 256-colour graphics are digitised and there's lots to look at, depicting the innards of a creepy haunted house, room by room, which is crawling with ghosts and ghouls...

By pointing and clicking, you can pick objects up and move them around, store them in your rucksack and carry them with you for later use. Your client wants you to clear the house of antiques and take them to your van, parked outside. The ghosts don't.

As you move from room to room you get all manner of unwelcoming spooks, from the genie that tells you to 'Leave this house' to the very unfriendly suit of armour that doesn't like bells, bibles and... sorry, can't give too much away. There's a frog hopping round outside that croaks 'sod it' and 'sod off' if you click on it and there's even an invisible cat that claws you if you attempt to touch it.

The first puzzles are easy, as in really logical stuff like using the watering can to find the door knocker to get inside the house. At first I thought *Haunted House* could only be aimed at people with adventure game experience, rather than the 'not bad' to 'super-sleuth' gamers.

However, I returned home one night to find that a couple of friends, who had never played an adventure before, had cracked a few of the puzzles I'd virtually given up on and were way ahead of me. Maybe I'm just useless...

The attention to detail is impressive and I'm not only talking about the graphics. If you drop something outside the *Haunted House* window a digitised voice from John Major's *Spitting Image* puppet says 'Oh dear!' and you've lost it for good. Also – true to life – you can't close the double doors at the back of your van in the wrong order.

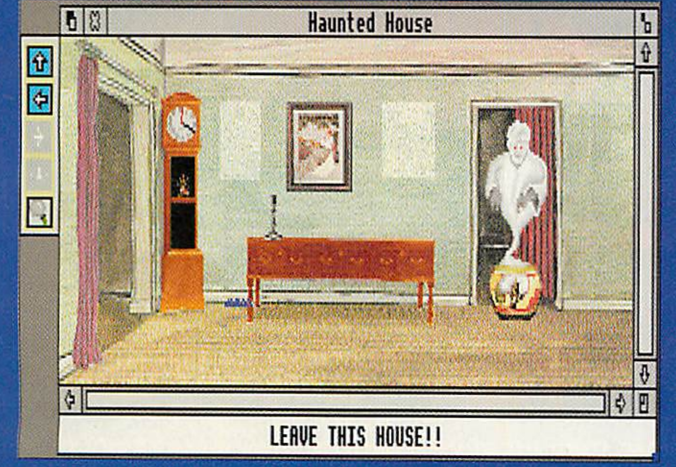
If you're in a destructive mood you can wander round the house dropping fragile antiques on the floor and smashing them. (Then the little message box tells you you're looking at a 'heap of broken pottery'. Ha ha!)

Moving around is a case of clicking on some arrows in a small control box, but don't try this at home if you are easily confused. Moving back the way you came isn't as simple as clicking on the 'back' arrow, due to the bizarre way that *Haunted House* is structured; it turns you round depending on which room you're in and subsequently, for example, 'right' is sometimes 'up' and 'backwards' is 'right'. Weird!

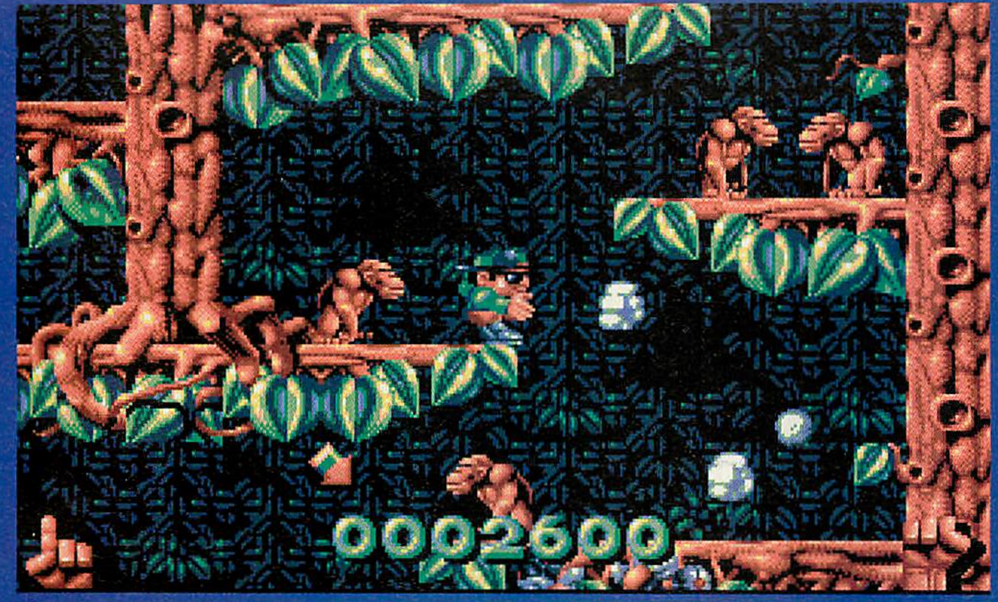
You can save your game at any point in the normal desktop fashion and you will certainly need to do this often if you are to avoid starting from scratch every time you screw up – like wandering into the alchemist's cellar for instance...

And the spookiest thing of all? Well, ever since I've had *Haunted House*, my new packet of chocolate digestives has remained intact as if there was some sort of force keeping the thieves occupied. *Haunted House*? Munch, munch, it'll freak you out.

Sam Greenhill



A charming reception from the local residents



Life in the Jungle

MAGIC POCKETS

When *Acorn User* spoke to the legendary Bitmap Brothers back in 1992, they admitted that when the Archimedes came out, they were all itching to write something for the machine. Well, now they have, albeit indirectly. *Magic Pockets* is the latest conversion from the bitmaps, and pretty damn groovy it is too.

In the game you play the part of the Bitmap Kid, who was very much like all the other kids on the block until



See that flying ice block? That's dangerous, that is

one day a strange old man gave him his pair of mystical trousers which confer a certain coolness on the wearer; as the blurb says, 'Now Kid kicks and is in the house. He's so cool it hurts.'

However, all is not well: Kid's best toys have become lost in his bottomless pockets, so he goes in after them, and finds himself in Pocketland.

The nasty Pocketpeople have been playing with his toys without his say-so, and it's up to him to visit all four corners of Pocketland to get them back – and teach the Pocketpeople a lesson by unleashing the awesome powers of his pockets. Pretty original storyline, huh? What all this boils down to is one of the most stylish platform games I've ever seen. Graphically everything is tip-top. The game has the Bitmaps trademark 16-colour graphics made to look like 256, and cleverly interlocking scenery blocks.

Supplier: Renegade
Price: £25.99
Tel: 071-481 9214

The loading music is a brilliant recreation of Betty Boo's *Doin' the do* using samples, and the sound effects are great as well.

Kid visits four different worlds in the game: his bike is in the Caves, his boxing gloves are in the Jungle, his diving helmet is in the Lake and his space hopper (remember them?) is up on the Mountain.

Each world has five different types of Pocketpeople, each with their own kind of behaviour and strength. One feature that is pure Bitmap is that just when you think you know how a certain creature behaves, it goes and does something our of character.

The key to the game is learning how to throw out the various things Kid keeps in his pockets. The longer you hold down the fire button, the larger Kid's pocket swells, and when you release the button, he hurls a weapon of proportionate size.

Said weapons depend on which corner of the world the Kid is in at the time – he can throw whirlwinds, cloud, iceblocks and snowballs. Where the weapon is thrown depends on how you fling it, and this is a fairly tricky skill to master.

When you throw a weapon out, an arrow is also ejected which points towards the exit. Kid can 'spin' off the largest whirlwinds and then, Sonic the Hedgehog style, annihilates anything he comes into contact with.

Also, Kid can trap Pocketpeople in his weapons, and then force them to throw out their Sweet Things, which he can collect for loads of points.

There are many little surprises in this game, and bonus items dotted around everywhere. Various objects can be collected to give you credits, so that when another trigger object, a gold star, is found, the credits are converted into a special item.

It could be anything from a transporter helmet to some gasoline, which changes his Pocketpower to a flamethrower. Kid can even fly by drifting underneath a bubble gum bubble.

There are disintegrating blocks and secret rooms to be discovered as you go. In the Jungle you encounter sprouting beanplants which can be made to grow by watering them with a droplet from one of your pocket clouds – then they can be used as platforms.

In the Lakes Kid can go diving as long as he's wearing his helmet, and if there's a stretch of water he can't jump over, he just freezes it using a block of ice.

This Kid knows what he's doing: once in a blue moon (which is more often in Pocketland than here) you come across a humungous knickerbockerglory . When you devour it, Kid shouts 'Yeah!' and gives himself a 5,000 point bonus!

The Bitmaps enjoy working within a style, and here they have captured just the right cartoony flavour and used the platforms format to great effect. This has to be one of their best games to date. Go out and buy it, you lucky people.

Mat Tizard



Starting off in the caves, life's not too tricky for the Kid

THE CRYSTAL MAZE

Supplier: Sherston Software
Tel: (0666) 840433
Price: £39.95 inc VAT

The cult TV show *The Crystal Maze* has escaped the confines of being a Channel 4 spectator sport and is now making a bid to become a cult computer game. Fans of the long running programme will be familiar with the content – six contestants, four zones, four game types, one Richard O'Brien.

Ah, well, therein lies the first problem in my opinion, there be no Raucous Rick egging you on or making sarky comments about your inept fumblings at the games. Mumsy does make an appearance in the Medieval zone, but there is no sign of the leopard skin-clad host.

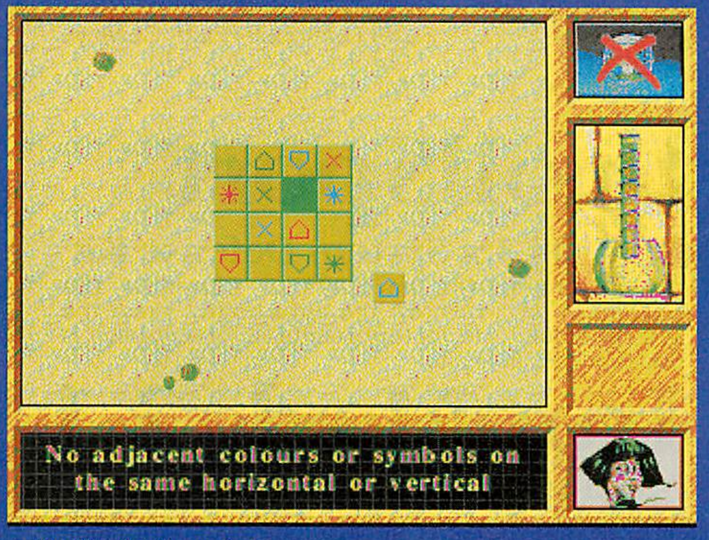
Anyway, on to the game. You pick your team of six players from the twelve available; certain players are better at certain games, and trial and error over a number of games will enable you to find out their particular skills.

The format of the show is then followed very closely – you pick a zone to play first, then proceed around the maze playing three games in each zone before entering the crystal dome and having the possibility of winning something quite mediocre (as our Rick would put it).

As with the show, there are four game types: physical, skill, intelligence and mystery. There are only six games in each zone, so it doesn't take too long in practice mode to find them all.

The physical games all tend to be the same, where you use the keyboard to guide a small figure up and down ladders and jump across various hazards. There is only one physical game in each zone and I found them very frustrating after only two or three attempts, so I gave them a wide berth after that.

The skill games are fairly mixed, some easy, some hard, but all require a fair degree of dexterity with keyboard or mouse. The intelligence games are probably the easiest of all, possibly because they translate to the computer environment much better than the others. There's a magic square, a sliding block puzzle, solitare, pair matching and so on.



A tricky little intelligence test...

Mystery games have always been a bit short of a mystery . In the computer game most of them involve finding a number of clues in a room – a digitised picture is shown with a cryptic-ish clue. You must find the object described and click on it for the next clue. Solve three clues and the crystal's yours.


Trying to catch balls in a skill game

The main problem with these games is the lack of resolution in the pictures. A Mode 13 screen is used, so although there are 256 colours it is very hard to distingish some objects. It's hard to know what could be done though – a high resolution (Mode 21 or 28) screen is really needed, but most people use standard monitors, so perhaps some scrolling mechanism would have been best.

Mumsy makes her appearance in Mystery posing a couple of mathematical problems, but I find practically all the allowed time trickles away just reading the questions!

Visually *The Crystal Maze* is very nice indeed. Practically all the graphics have been designed by an artist and then scanned in. Caricatures of the players make a nice change from badly-drawn pink faces.



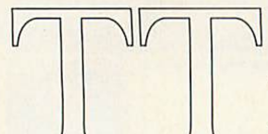
...solved for a crystal

Unfortunately I think 'Maze fans and hardened games players will be disappointed with *The Crystal Maze*. There are only 24 games (which, to be fair, is a limit imposed on Sherston by the format of the TV program) and not really much to hold your attention.

On the other hand, from what I can tell the game has been designed so that new ones could be added, and I hope Sherston is planning to do so. The variable levels of difficulty and different players' characteristics do add to the variety.

I think *The Crystal Maze* will have great appeal with younger players and in the classroom, making problem solving interesting and learning fun.

Dave Lawrence



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DAVE WOOD

Spring

Have you ever had the urge to throw a large cube of jelly down a flight of stairs? Well, maybe you haven't, but an application on this month's cover disc gives you all the fun of this experience (and others) but without getting your carpet sticky.

It creates animations using a method which has been employed by professional computer animators for some time now: you may have seen the BBC 2 trailer where a silver number 2, apparently made of jelly, falls onto the floor and bounces off, wobbling as it goes.

The application on the disc, called *FEMS*, is a program which simulates the behaviour of simple objects by modelling them as collections of small masses connected by springs. This doesn't sound very interesting, but the effect always seems to impress those who watch the result.

The only thing that now prevents you from creating an identical film to the BBC 2 trailer is that for a 5 second animation you have to store 250 pictures somewhere. This is the reason why *FEMS* creates black-and-white images, which can be greatly compressed.

The dotty images on these pages may not look so impressive, but when they are animated the brain can "fill in the gaps'.

Running the example animation

Why not play back the animation provided on disc to see what can be done?

Double-click on the *FEMS_App* icon on the cover disc, and you will get a directory window containing the *FEMS* application, a directory called *sims* and a couple of files.

If you run the application, a new icon will appear on the icon bar. One of the files is a pre-recorded animation called ClothSphe2, and you can now double-click on its file icon to view it.

When the animation has finished, you can press any key to play it again or the spacebar to play it repeatedly. You can slow down the playback by holding down CTRL, and freeze it by holding down CTRL and SHIFT. To get back to the desktop, press ESCAPE and then F4.

If you liked what you have just seen, the *sims* directory is full of ready-written setups for different animations, just waiting for you to run them. Complicated animations such as *ChairStair* take about an hour and a half to produce, but most are simpler and take a lot less time.

The important thing to note is that once an animation has been created, it can be stored on disc and played back as quickly as the one you have just seen.

How a script file works

To give you some idea of what a script file does, let's look at the script called *ClothSpher* line by line. It starts with:

```
FEMS2
```

Every FEMS script file must start with this line, so that the program knows you have not given it a letter to your granny by mistake, and which version of FEMS it was written for.

```
/* simulation definition file to
drop a cloth on a sphere */
```

The next line is a comment: when the program encounters the characters '/*', it ignores everything until it finds a '*/'. You can use this to remove parts of a script file temporarily without deleting them. The real *ClothSpher* file has lots of comments, to remind you what each part does.

```
rendering {
type dots
resolution 320,256
view -41,24
}
```

This is the rendering block. It tells the program how the scene should look on the screen. Try changing the rendering type from 'dots' to 'lines', saving the file and creating the animation again.

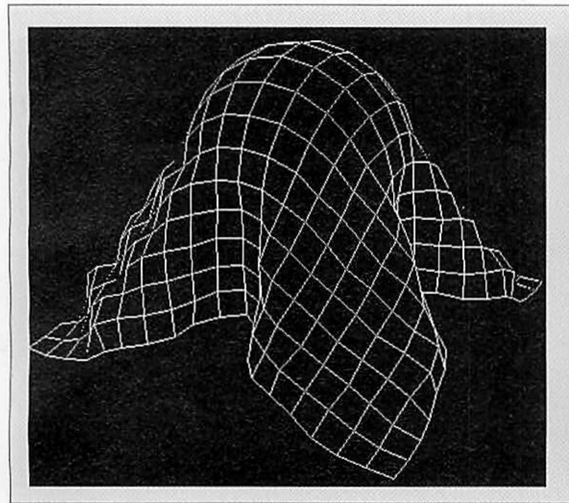
The resolution command lets you choose the screen resolution, in this case 320 by 256 pixels. If you have a multisync monitor, try changing this to 640 by 512, but note that it will take more memory to store the frames.

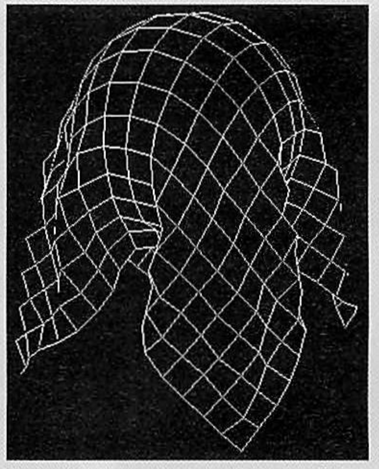
```
frame_aim 640
gravity 0,0,-600
time_div 1
```

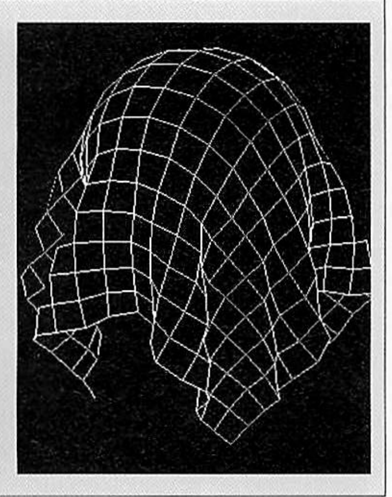
These commands set up some parameters: 'frame_aim' sets how many frames to do before pausing, and 'gravity' sets the direction and strength of gravity. 'time_div' sets how finely time is sliced up. The effect of this is to make the objects more solid, at the cost of slowing down the program.

```
/* create the sphere */
background {
create {
 type sphere
 points 12
 size 3.3in
}
translate 0,0,3.3in
}
```

This block creates a background type object and then moves it upwards by 3.3 inches.







into action

Michael Attenborough joins the jelly-throwers courtesy of Finite Element Materials Simulation

If you want to create and store a new animation, you will have to copy the *sims* directory to another disc first. This is because the files on the cover disc are archived, so you cannot add anything new to them. It is also best to copy the *FEMS* application onto the same disc, so that you don't have to keep swapping discs.

To create a new animation, just drag one of the text files from the *sims* directory onto the *FEMS* icon. The one called *ClothSpher* is a good starting point, because it is quick to produce. First you will see some text scroll past: this is the program displaying the script file for the scene as it reads it and deals with it.

If there are no problems with the script (there won't be with the ones supplied), the program will then start generating the scenes of the animation.

While the program is calculating, there is a status display in the top left of the screen. The maximum number of frames and the completion time are estimates, which may change. This display is only for your information, and does not require any response.

If you want to see how the animation looks so far press P (for Preview) during frame generation, and the program will stop (as soon as it has finished the frame it is working on) and show you what has been created so far.

If you press Q (for Quit), the program will stop generating frames, and offer to save the animation to disc. It will attempt to save it in a directory called *anims*, inside the directory the script was in (so if the definition file was *$.sims.SoftTube*, it will save the animation in this form – *$.sims.anims.SoftTube*).

Should you need to increase the space available for frame storage, bring up the task display by clicking on the Task Manager's icon and drag the Next slot up to its maximum before dragging a file onto the *FEMS* icon.

Because this is a background object, it will not move, but the moving solid objects will interact with it.

The create block needs to know the object type first, because 'points' and 'size' have different meanings for different objects. Here 'points' sets the number of points going halfway round the sphere: you don't need as many if you use rendering type 'lines'. 'size' for a sphere defines the radius.

Distances should always have a unit: in the above case the 'in' at the end of the number specifies inches. The program also recognises 'ft', 'cm' and 'mm'. The default unit is 1/640 of a point, which is very small, so don't forget to state the units!

```
solid {
create {
 type sheet
 points 21 /* 20x20 squares */
 size 16.3in
}
nearbonds { spring_const 51 : range
2.1 }
damping 3
translate 0,0,6.9in
}
```

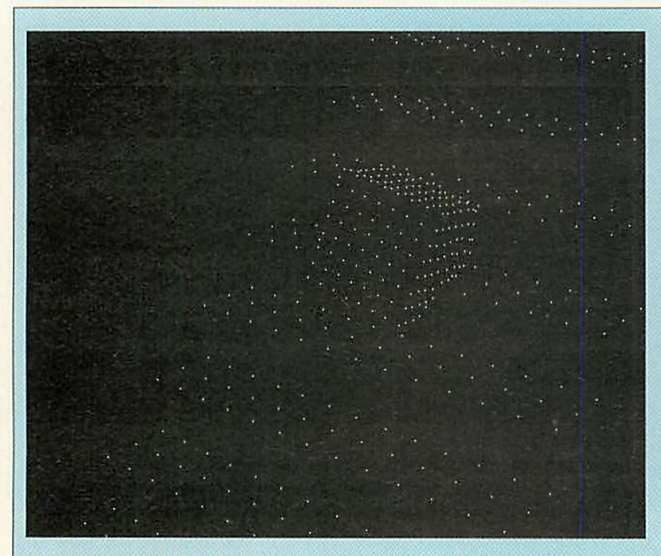
This block creates a solid type object. This means it can move, interact with background objects (but not other solid objects), and will distort when it hits things. The create block is the same as that for the background, except that you are creating a sheet rather than a sphere. You can actually have a sheet as a background object, in which case it acts a floor.

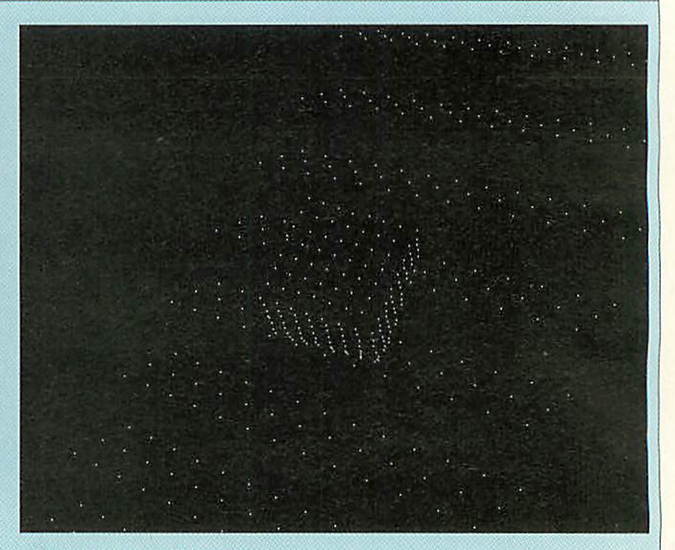
For a sheet, points is the number of points along the edges, so this sheet has 21 by 21 points. The size is the length along one edge. The translate command you have seen before: it is used here to lift the sheet above the sphere.

The nearbonds command, which is actually a block put onto one line, is what makes the solid a solid. It needs to be put after the 'create' block, because it creates all the little springs which hold the points in the object together. It is called nearbonds because it only bonds together points which are fairly close.

The number after spring_const sets the stiffness of the springs, and range sets how near two points have to be for a spring to connect them.

Solid objects need to have the motion of their points "damped", otherwise the springs would make them vibrate out of control. Unfortunately, the damping also has the effect of stopping the whole object moving very quickly, so things sometimes look as if they are underwater. Generally, you will want the smallest value of damping which is sufficient to stop the thing exploding.


Drop your jelly cubes down stairs...


...and this is what happens

Designing your own scenes

To give maximum flexibility in the setting up of simulations, and because there are so many possibilities, the scene and parameters are described in a text file "script" which tells the program what to do.

Even if you don't feel up to creating your own scenes, fiddling with the provided animation scripts will allow you to change things like the screen resolution, rendering style – whether the picture is drawn with dots or lines – and the viewpoint used.

Since the simulation setup files are just text files, they can be created and modified in *Edit*. Look at the line-by-line description in the box to get the general idea.

There isn't room in this article to give a complete guide to all the commands you can put in a script file and how to use them, so this information is in the file *FEMSDoc* on the disc, where you can look it up if and when you need it.

I recommend that you try out the simulation scripts on the disc, and then examine the script and read *FEMSDoc* to find out how the effects were achieved.

A script file contains two types of information: it sets up the options which affect how the simulation is done, such as the drawing style, screen resolution and gravity strength, and it also describes the objects which will appear in your film.

Objects come in two basic types, solid and background. Solid objects are the stars of the show: they can fall, bounce, squash and flop around the screen. Background objects are just there for the solid objects to fall on. Solid objects cannot bounce off each other – this is hard to program because their shape is complicated and changes constantly.

Four shapes of solid are built into the program – a sheet, a cuboid and a tube. There is also a cube, which is just a cuboid which has all dimensions equal. To make these more versatile, you can stick any number of these together to make a "compound" object: this is how the chair was created in *ChairStair*.

When creating an object, you specify in the script both its physical size and the number of points it is made out of. Solid objects also need a description of how they are held together: there is a command which controls how strongly points are bonded together, and how many bonds there are.

Any object can be translated (moved around), but only solids can be rotated as well. The types of background object you can have are a floor, a sphere and a flight of stairs. The floor is made in the same way as a sheet, but effectively goes on forever, even though you can only see part of it.

Due to the way the program works, simulations will sometimes fail when the forces on an object get too large. When this happens, parts of the object start oscillating violently and the picture becomes a mess. If this happens to you, here are some things to try:

1: Make sure you have not embedded solids inside background objects, because this will cause very large forces as the background object tries to spit the solid out.

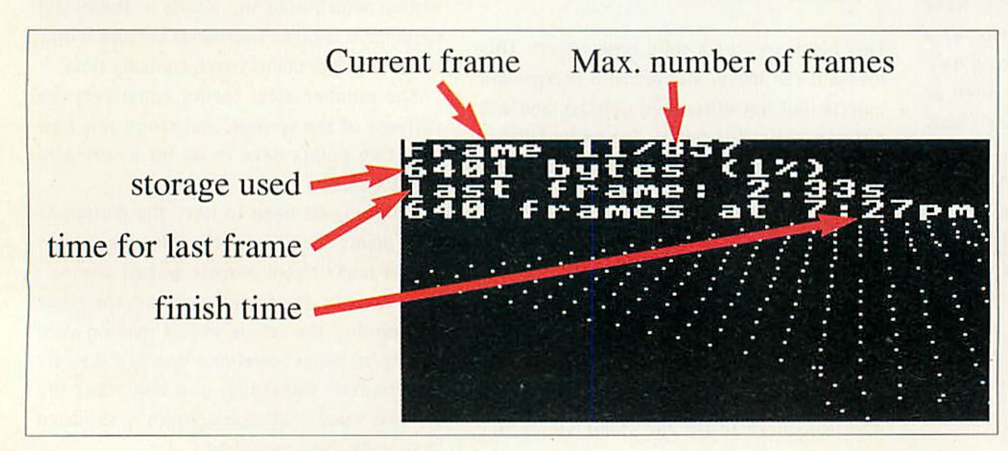
2: When you create compound objects, make sure none of the parts stick through each other, because this will make the object unstable.

3: Increase the damping if you can do this without spoiling the effect.

4: Make sure the spring constants in the solids are not too high.

5: Increase 'time_div' to 2 or 4 (see box). This slows down the calculation, but usually helps a lot. If this doesn't work, check points 1 and 2 again.

● In next month' *Acorn User*, I will describe how the program works (and what FEMS means), and add some more features to the program.



The status window shown when creating animations

Doing it in Style

Richard Hallas looks at the package that will, according to Computer Concepts, be the only word processor worth considering

It's almost exactly three years since Computer Concepts upgraded its *Impression* DTP package to version two. Since then there have been other minor enhancements, but it has nevertheless remained essentially the same for those three years.

That's a fair time for a software product to go without any major upgrade, and *Impression II* has been accused of falling behind the competition in some ways.

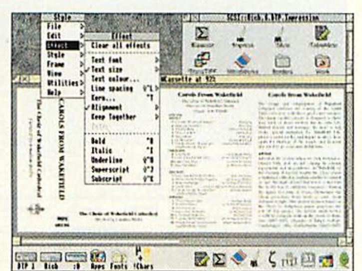
However, the CC programmers have not been resting on their laurels: after a relatively short publicity period, the next instalment of the *Impression* series has now been launched.

Replacement

Two surprising things about *Impression Style* are its low price and its 'word processor' suffix. *Style* is actually intended to replace *Impression Junior*, which was a slimmed-down version of *Impression II* with the DTP facilities removed; due for launch early next year, *Impression Publisher*, is the true successor to *Impression II* as the professional DTP package. This is all a little confusing, as it transpires that *Style* is as much a DTP package as was *Impression II*.

Another surprising thing about *Style* is the amount of bundled software you get with it: no fewer than three additional packages are thrown in.

These consist of a comprehensive dictionary and thesaurus, *WordWorks*, a mathematical equation editor, *Equasor*, and a small utility called *TableMate* for adding tables to your documents.



The new Effects menu, containing Italic and Bold effects.

Clicking in a *Style* window causes a tool bar to pop up. The lack of a decent tool bar in *Impression* has been a major gripe for a while, so this is a welcome addition. There are buttons for all the major functions like placing frames and saving to disc, and the text/ruler section lets you use effects by clicking on suitable buttons rather than having to navigate through menus. This makes *Style* far easier to use as a basic word processor than *Impression II*.

The best short-cut the tool window provides is the style definition button. All you have to do is set whatever effects you want at the cursor, click on Define, and *Impression* will create a new style based on whatever attributes are in force. This is really quick and easy to use.

You can still use the style editor window for fine control, and in fact, this has also been greatly improved: gone is the awkward scrolling window of previous versions. It has been replaced by a set of four pages concerning different aspects of a style's definition. This has led to a much clearer layout than before, and it's easier to get to the part you want quickly.

Having said that, I did find that the replacement of a single window by two separate ones is a bit cumbersome if the windows cover up a part of the document you're trying to look at, as you now have to move two windows. However, ways of improving this situation are being considered by CC.

Using Style

In use, *Style* is just like *Impression II* with a few extra features added. You can now select a region of text and just drag it to where you want it to go, rather than using cut and paste. It's also possible to highlight areas with the cursor keys and SHIFT, rather than using the mouse. This is useful, but I do miss the ability to step through the text a word at a time (which was what these keys did in *Impression II*).

A most impressive new feature is the so-called OLE facility (Object Linking and Embedding) for graphics. Using this system, a simple double-click on any graphic frame will start up the appropriate editor for the illustration in question and, when you have finished editing it, saving the modified version automatically drops it straight back into the frame.

This applies not only to *Draw* files and sprites, but also to such things as tables and equations. A very handy system which works well.

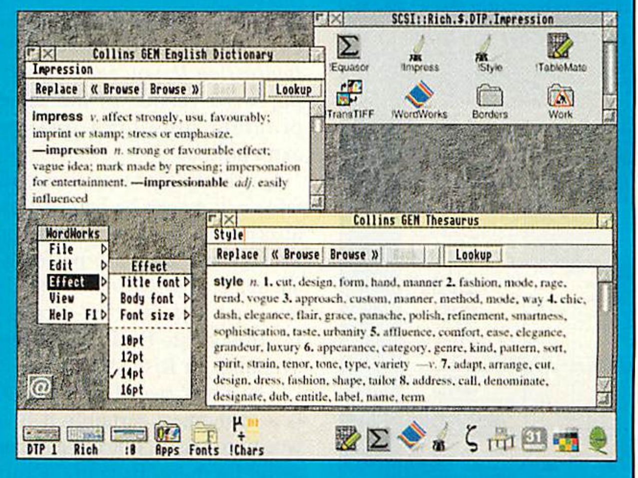
In fact, the whole graphic system built into *Style* has been extensively revised since *Impression II*. There are more efficient controls for panning, rotating and resizing graphics, and *Style* will import all Acorn sprites, including the new 24-bit formats.

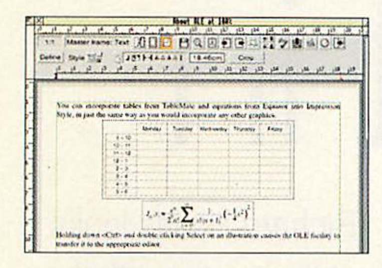
All can, of course, be viewed in any mode, and *Style* does a very good rendition of full-colour pictures even in 16-colour modes. A TIFF file loader is supplied with the package, and other graphic file

WordWorks

This is advertised as a dictionary and thesaurus, containing the Collins GEM data, but in fact it's more than that: it also acts as an extensive on-line help manual for *Style*, and whatever other products care to use its file-format in future. It's attractively presented and quick to find references.

The only thing I didn't really like about it was the highlight colour of bright green (which can't be changed). Otherwise I can't fault it, and it's good value when bought separately. And as it's free with *Style*... need I say more?





Incorporateing tables from TableMate using OLE.

loaders (for example JPEG) will be available later.

A quality control menu lets you specify how well *ArtWorks* and *Draw* files are represented, and at the full setting it will anti-alias both sorts of file.

Nearly everything that was in *Impression II* has been put into *Style* in an improved form. A couple of *Impression II*'s more esoteric features (the 'snap to line-space grid' and the CMYK colour picker) have been taken out, but otherwise there's hardly anything missing.

The rather superfluous guide-frames are no more; the ruler editor is now part of the style editor; there's a nicer *ArtWorks*-style zoom tool.

Of course, there are some brand new features: automatic paragraph numbering, easy addition of headers and footers, tracking (as an effect); mail-merge is now built in; Risc OS 3 automatic font kerning is supported; bold and italic effects can be used without having to choose a font; *Style* doesn't require a dongle, unlike *Publisher* and *Impression II*.

In short, if *Impression II* can do it, *Style* can do it better.

What about Publisher?

Impression Publisher's additional features are geared towards the professional DTP user: there will be full 24-bit colour separation capabilities, the ability to edit gamma-correction curves, PostScript screen angles and so on.

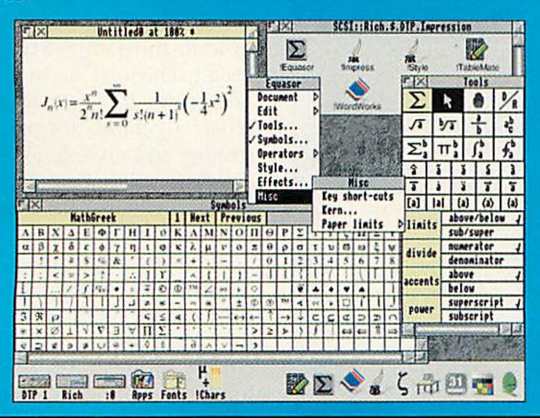
There will also be a few extra features of interest to all users, such as tracking (as a style), embedded frame-groups, guide-frames or guide-lines, a page grid and, most importantly, irregular-shaped frames.

Equasor

Computer Concepts' equation-editing package has been around for a while now. Its inclusion with *Style* is welcome, but as a utility in its own right I am less enthusiastic about it than the remainder of the package.

I must have been spoilt by the splendid equation editor built into *TechWriter* from Icon Technology, which is generally more flexible than *Equasor*, and makes a very good job of getting the mathematical typography correct, whereas *Equasor* lets you do things like typing a hyphen instead of a minus sign, and so on.

Certainly, given patience and attention to detail you can get excellent quality results from *Equasor*; however, if you are a purist, or mathematical typesetting is particularly important to you, have a look at *TechWriter* for these features.

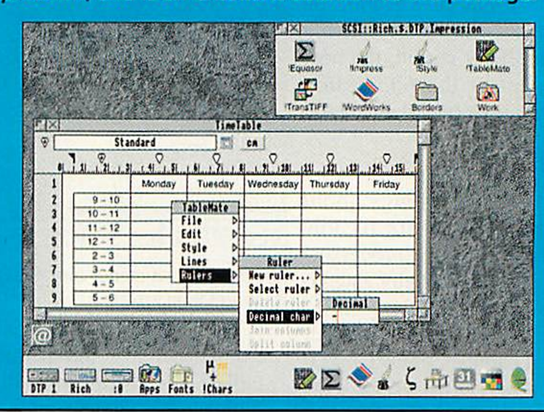


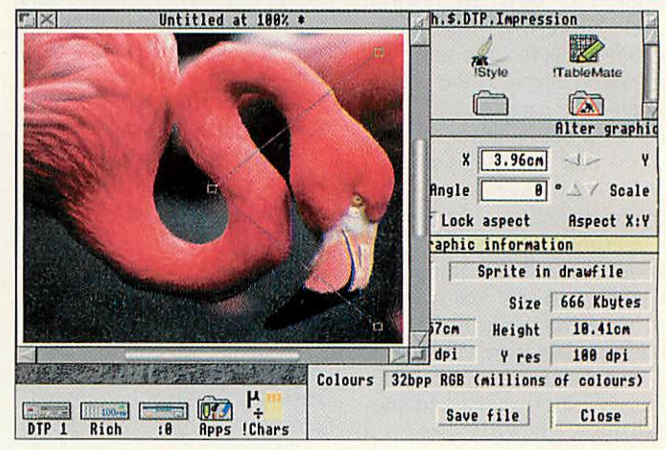
TableMate

A small utility designed purely for making tables, *TableMate* will either create a set of styles for you to use in *Impression*, or a graphic table for you to use with the OLE facility.

Although perhaps not quite as flexible as the dedicated table features built into other packages such as *Wordz*, it is very easy to use, and is hugely preferable to the cumbersome method of making tables manually from text styles with horizontal and vertical rules.

You can resize cells, merge them and turn their borders on and off very easily. Altogether this is a delightful little utility which takes all the pain out of making tables in *Impression*, and is an excellent addition to the package.





Manipulating sprites in Style.

Conclusions

Impression Style represents ridiculous value for money. At two thirds the price of *Impression II*, you get a greatly improved version of the same program plus high quality extra utilities.

Certainly the equation and table editors can be bettered by alternative packages, but for average use they are perfectly adequate. *WordWorks* is excellent, and *Style* itself is currently the best DTP package available for Risc OS.

The term 'word processor' is a misnomer: certainly it is a word processor, but it's also an awful lot more. Buying the full package won't break the bank but, if you have *Impression* already, the upgrade price makes *Style* almost a giveaway.

Unless you need any of the professional features of *Publisher*, you should not hesitate to get this excellent package.

Product details

Product: Impression Style
Price: £99 + VAT
Upgrade from Impression II/Junior: £29.00 + VAT
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- Over 100,000 dithered colours under RISC OS 3.
- Fully editable graduated blends giving antialiased effects, directional graduations and image superimposition.
- Variable sensitivity tracing, blurring, sharpening, dithering and mosaic effects.
- Control over hue, saturation and contrast on whole images, selected colours or selected areas.
- Internal colour processing at 24 bits per pixel (dithered onto standard 8 bit sprite).
- Tint, RGB and CMYK colour modes.

ScanLight Video 256 combined grey scale digitiser and scanner

- A video digitiser and scanner combined on a single-width Archimedes expansion card - uses only one slot!
- 400dpi handheld scanner included
- Grabbing the right video image is easy with the real-time desktop viewfinder; then crop, scale or rotate using ScanLight Plus image manipulation software
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- Choice of grab sizes, 768 x 288 (TV-shaped) or square (up to 512 x 512 resolution)



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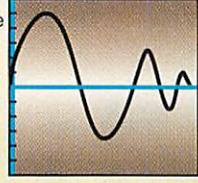
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2Mb RAM required and a hard disc is recommended.

QuickSnd £10+VAT



Load, play, convert & resave existing Armadeus, Tracker and raw data sound samples and apply special effects including Reverse, Echo, Max Vol, alter replay rate and resample frequency. Convert samples into modules for use with the RISCOS sound system etc. Create stand alone Utility modules which when called, via star commands, automatically play and then remove itself completely from memory (this feature is not available on any other sound package). Use Utility sound modules with RISCOS Alarm to play on activation of an alarm. On screen VU meter included.

Magneto Optical Drives (SCSI)

128Mb Magneto Optical SCSI Drive 28ms 1" high	**£599**

The above unit is a bare drive and can be mounted in the spare floppy bay of an A5000 or in an external case for other machines. SCSI interface extra.

External case for above	£69
128Mb Blank Discs	**£35**
A5000 Econet SCSI Interface	**£49**

CD-ROM Multimedia

External Toshiba CD-ROM Drive (The fastest avail./Caddy loading)	**£399**

The above drive is a PhotoCD compatible 150/300/330kb/s speed unit with 200ms access time. C/W case and power supply and one caddy.

External Toshiba CD-ROM Drive (Twin spin speed/Tray loading)	**£319**

As above but tray loading with 150/300kb/s speeds and 350ms access time.

Acorn Multimedia Expansion System	**£499**

A4000 style case complete with power supply, SONY multi-session CD-ROM drive, pre-amp with headphone/phono inputs/outputs, CD caddy, etc.

Add £139 to above prices for Morley SCSI Interface.

Hard Discs

The no nonsense RISCOS 3 compatible HardDisc solution

IDE

The following are complete systems comprising of the NEW Desktop Projects IDE interface, hard disc, mounting brackets, cables, utilities disc and manual.

RISCOS 3.10 or later required.

Archimedes 3.5" Internal

Not suitable for A3k,A3010-A3020

80Mb 16ms Cache	£200
170Mb 16ms Cache	£255
250Mb 13ms Cache	£295
330Mb 12ms Cache	£Call
520Mb 12ms Cache	£Call

A3000/Archi/A5000 External

80Mb 16ms Cache	£270
170Mb 16ms Cache	£345
250Mb 13ms Cache	£385
330Mb 12ms Cache	£Call
520Mb 12ms Cache	£Call

DTP IDE Disc Controller	**£65**

Complete with cable, guide & disc
Works with Conner, Quantum Samsung, Maxtor & Fujitsu.

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For A5000's only.

170Mb 11ms Cache	£200
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HCCS A3000 IDE Hard Cards

20Mb Internal+User Port	£179
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HCCS Ultimate Multi-Podules With IDE Hard Disc

	A3000	A3010
20Mb Internal	£229	£222
60Mb Internal	£309	£299
80Mb Internal	£349	£339

2 Multipodule slots are provided on the A3010 and 3 slots on A3000

SCSI

The following are complete hard disc systems comprising of a Morley SCSI uncached interface, hard disc, brackets, cables, utilities disc and manual.

Archimedes Internal

Not suitable for A3k,A3010-A3020

120Mb 18ms Cache	£395
200Mb 18ms Cache	£545
330Mb 12ms Cache	£Call
520Mb 12ms Cache	£Call

A3000/Archi/A5000 External

120Mb 18ms Cache	£475
200Mb 18ms Cache	£625
330Mb 12ms Cache	£Call
520Mb 12ms Cache	£Call

The above are ext units with card.

SCSI Controller Cards

Morley Uncached	£139
Morley Cached	£179

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Ancestry (Minerva)	£59
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ArcTerm 7 (Serial Port)	£62
Armadeus (Clares)	£65
Artisan 2 (Clares)	£49
Art Works (CC)	**£129**
With free TopicArt disc	
AudioWorks (CC)	**£48**
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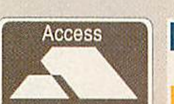
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Please contact us if you are offered a better price elsewhere, we will do our best to match it.
We operate the Acorn Teachers Scheme. Special offers do not apply to Finance and Acorn Assist Scheme.
This document was produced entirely on the Archimedes using Impression, ArtWorks, Draw & Paint.



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QuickTile (v1.01) £25+VAT

Up until now it has only been possible to print posters from Draw & Sprite files. Now with QuickTile you can create posters from ANY RiscOS application. Simply enter the size of poster required and select PRINT directly from the application! QuickTile does the rest, printing each tile with crop marks & refs. **Requires RISCOS 3.10 or later. Send v1.00 disc back for free u/g. Tiler upgrade - £15+VAT**



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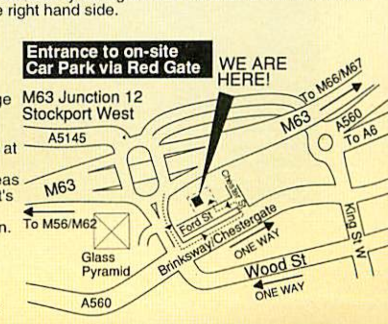
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NEXT MONTH

IN ACORN USER

Programming Special

Everyone wants to learn how to use their machines to the full, and learning to program is the best way to unleash the power of your Archimedes. In our programming special we look at the programming languages available; the best books to help you learn to program; the future of programming languages; the software and hardware you'll need to become an expert; and lots more.

We'll also be looking at different aspects of programming, from artificial intelligence to programming for our own desktop system, OmniDesk. If you're interested in pushing your machine to the limit, you'll need our comprehensive guide to life beyond the desktop.

PLUS

BETT '94

BETT is the most important computer show for education, and we'll provide you with an essential guide to which stands to visit and what to look out for.

Sibelius 6

This amazingly flexible music package looks set to redefine the standards for music typesetting on the Archimedes. We test it to the limit.

Games

Christmas may have been and gone, but there are still a lot of new releases out there, and we've got 'em all.

Plus

The continuing guide to the National Curriculum, Scribe OCR, news, reviews and all the regulars.

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IN BRIEF

An application to stick Post-it notes on your desktop, and a faster, bigger and better portable computer.

NOTES

Supplier: The Really Good Software Company
Tel: (0582) 761395
Price: £9.95 inc VAT

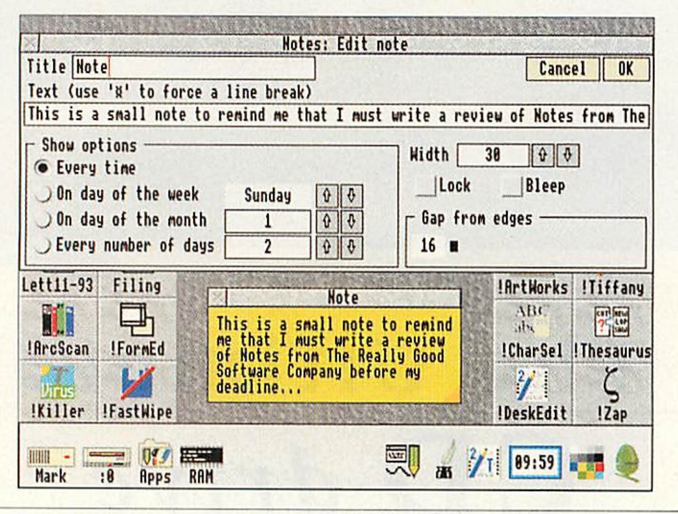
Notes is a cheap and cheerful application that allows you to create the desktop equivalent of sticky Post-it notes, and I have to say it's proved very useful.

Notes can create three different types of note. The first is a 'dir note'; this is effectively a stand-alone directory, which will display a note when run, or when it is 'seen'.

The second is a 'stored note', which is saved within the *Notes* application itself, and can only be seen using *Notes*; these can be displayed whenever you turn the machine on. The final type is an 'attached note', which can be attached to any file or directory, and will appear automatically whenever that object is run.

In addition, you can configure any note to appear only on certain days of the week, or regularly every so-many days, and you can set notes up to be printable if you like.

Entering a note is very easy. A little note window pops up, into which you can type your text; the usual editing rules apply, with the cursor keys moving the caret around, and automatic formatting of text.



A great idea is the inclusion of note styles, which enable you to define particular types of note quickly: for example, you might want all urgent notes to have a red background, and less urgent ones to be yellow, in which case you can simply define two styles with these attributes, and apply them appropriately. When you've created a note, you simply save it as one of the three types described above.

My only moan about *Notes* is that the manual is only provided on disc in one of those awful reader applications. The text isn't huge, and I would have thought that a manual wouldn't break the bank.

Apart from that, *Notes* is very handy and a great way to remind yourself what you have to do.

Mark Moxon

PSION 3a

Supplier: Psion
Tel: 071-262 5580
Price: £269.95 (256K); £329.95 (512K)

Psion's original Series 3 pocket computer/organiser was so good that Acorn licensed its own version specifically for schools. Reviewers everywhere marvelled at this little gem three years ago; now Psion have made it even better – and the improvements are far from cosmetic.

If you have to criticise the original Series 3, the screen's small size and an overall shortage of memory come to mind.

The new 3a has a screen which is not only physically bigger but has four times as many pixels and is now virtually immune from the LCD shadowing effect that affected the old screen in bright light. Also, grey scales can now be displayed. With 480x160 pixels instead of 240x80, real 80 column text has arrived, making a big difference to the word processor.

A zoom function for the display can fit even more on to the screen if you have good enough eyesight.

The *Agenda* diary/scheduler application has been totally revised to exploit the new screen to brilliant effect, and software compatibility with the original Series 3 is retained with four pixels acting as one old pixel.

The Acorn spell-check SSD (solid state disk) worked without problems, for example.

512K of Ram is now standard on the top model, the alternative being 256K for the cheaper model – both these figures are doubled compared with their MK1 counterparts.

Other improvements include a faster processor which uses lower voltage electronics so, according to Psion, the original model's remarkable battery life from just a pair of AA cells is uncompromised.

Sound quality is much improved and you can now record your own sound files and link them up to other applications, like the alarm facility. Unfortunately this is limited by the memory sound files take up (8K per second) though recording quality is very good. One wonders what happened to the technology Psion showed years ago on the MC laptop, which could fit an hour's recording into just a few hundred K of memory.

The good news isn't over yet – Psion has made the excellent decision to follow Acorn's example with the Pocket Book and include the spreadsheet as standard. Printer driver support is much improved and the serial port now goes twice as fast at 19.2K bps.

I have very few complaints, though the database application is still a bit too simple for some, and the keyboard, though useable, is rather fiddly. Although good value for money, the new 3a costs a fair bit, but the old models will remain on sale at reduced prices for some time.

Unfortunately, there is one big snag with the 3a. I was very happy with my Series 3 before the 3a arrived, but having used it, I just have to have the new version. I sincerely hope Acorn is going to update the Pocket Book accordingly.

Ian Burley

Psion 3a, faster and slicker

A selection of high quality Outline Fonts

Atlantis Chancellor Italian
Austin Classroom Mercury
Blacklet Gangster MILITARY
Wessex

RISC USER FONTS DISC 1

Buick Marti Salisbury
EXTREMITY NEWTOWN SLAB
Hudson OLDTOWN Rob_Roy
JOPPA

RISC USER FONTS DISC 2

Citril JamJar STCUTHBERT
Crikey JungleDrum Waverly
Curtis MILLIGAN SELLERS
DYNAMIC

RISC USER FONTS DISC 3

Each disc contains ten high quality outline fonts (all available exclusively from RISC Developments) in a variety of different faces. Each disc also contains a number of applications for further processing and manipulation of outline fonts. The fonts and applications are supplied on a single disc with a comprehensive menu system making everything very easy to use.

FONTS DISC 1

Font disc 1 also includes Acorn's Outline Font Manager plus the following applications:

ShowFonts - displays or prints outline fonts
DrawFont - converts outline fonts for use in Draw
FontSwap - allows font substitution
FontCtrl - allows easy tuning of font configuration
FontRead - downloads font definitions to PostScript printers

FONTS DISC 2
FONTS DISC 3

Both Fonts Discs 2 and 3 contain the following additional applications:

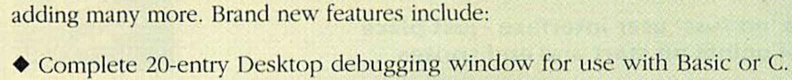
FontSpace - allows change of character spacing
Kerner - allows you to kern text (RISC OS 3)
ShowFonts - displays or prints outline fonts for reference
Ligature - allows easy incorporation of ligatures, smart quotes and dashes in your text (RISC OS 3 only)

PFD1a	**Fonts Disc 1**	**10.17 ex. VAT**
PFD2A	**Fonts Disc 2**	**10.17 ex. VAT**
PFD3a	**Fonts Disc 3**	**10.17 ex. VAT**

Please add £ 1.00 p&p.

More Editing Power with DeskEdit 3

DeskEdit 3 is a successor to the popular DeskEdit 2 program and text editor, and at no increase in price. DeskEdit 3 retains all the features of its powerful predecessor, while adding many more. Brand new features include:



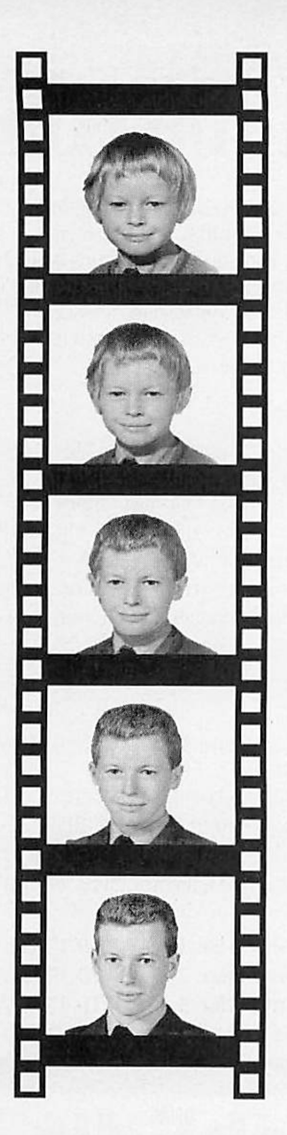
- Complete 20-entry Desktop debugging window for use with Basic or C.
- Independent scrolling window - any text or data can be displayed in this window by using one of the supplied Basic or C functions.
- A new set of 20 invisible markers are now provided with each window, making it even easier to find your way around your code.
- New views of all DeskEdit windows now have full functionality.
- New Function Locator - press Ctrl-A to jump to a function definition, and you can then flip backwards and forwards between definition and call.
- Extended File Info - drag a file to DeskEdit with Alt-Shift pressed to give extended info on files, including Template files, sprite files,modules, PCX files, and Basic programs.
- Auto indents are now implemented for Basic as you type.
- Overrides - a new user-choices file called Overrides allows the user to override a number of preset features of DeskEdit.
- Input Filter - an automatic input filter can be invoked to normalise PC files or similar, and reinstate them when they are saved.
- Display Width - this is now saved with extended saves, and is automatically brought into play on reloading the file.
- C Syntax Checker - this is even more effective at spotting mistakes as you type, including much more comprehensive multi-line checking.
- A new optional safety-net saver automatically retains on disc a separate copy of the latest file overwritten during a DeskEdit save.
- Plus numerous other small enhancements.

DeskEdit 3 is available now (product code PDE3).
Price: **£27.19** ex. VAT (RRP)

Upgrade from DeskEdit 1 (code PDEX) £8.47 ex. VAT Upgrade from DeskEdit 2 (code PDEU) £5.00 ex. VAT
Post & packing is £1 for upgrades, £2 for the complete package. Orders for upgrades must be accompanied by your original DeskEdit disc.

RISC developments

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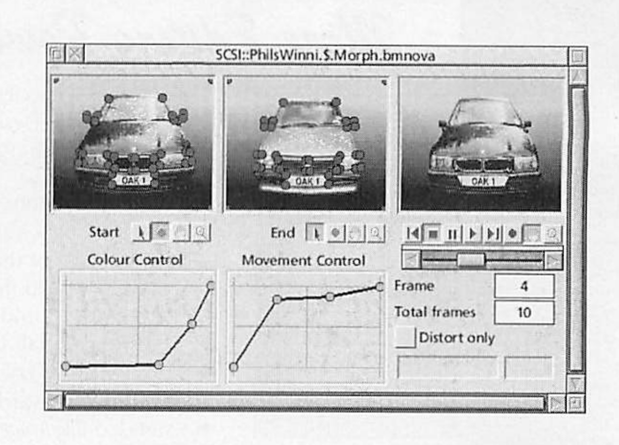


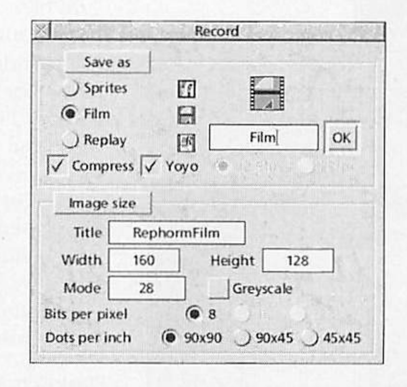
!Rephorm



the ultimate RISC OS morphing application

- produces sprites and animations
- creates Ace Film files as used in Projector (supplied), Genesis, Titler etc
- simple 'no fuss' user interface - just place control points on start and end sprites
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- high speed operation even on large sprites see changes 'live' as you drag control points
- fully multi-tasking during morph generation
- instantaneous 'thumb-nail' display during morph
- can also produce fades and wipes
- compatible with RISC OS 2 and 3
- supports 16-bit and 24-bit images
- any intermediate frame can be saved as a sprite
- animations can be edited using !Splice - available separately









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That was the year that was

Remember back in January 1993,when a whole new year was waiting? Well, now it's 1994 and all that, but just so 1993 doesn't slip us by completely, here's the Acorn User summary of the highlights and lowlights of last year, as seen through the eyes of the last twelve issues.

January

Acorn announces it is to sign a licence to develop PhotoCD software for the Arc. Canon releases the BJ200, later taken up and championed by Computer Concepts. Acorn commissions an official set of 3D window icons: however, they don't appear officially until Acorn World.

Rumours of the 3DO machine (reported then as being called CDO) spring up. FaxPack upgrade to answering machine and file transfer capability. Games reviewed include *Chopper Force*, *Aldebaran* and *Black Angel*. Colour card fever sweeps the nation, with CC and State Machine entering the fray at the same time. BETT '93 looks set to be a stormer, with CD-Roms figuring more than ever.

February

Quest for Gold is re-released with Replay footage of athletes included. Acorn's Seriously Bad Tour (remember that?!) displays a 'substantial presence' at the Gamesmaster live show.

Arm Ltd commissions the 'Arm Powered' logo, which is to be attached to all Arm-based equipment in response to Intel's successful 'Intel Inside' slogan. We report on the disappointing Dixons push of Acorn equipment: sound familiar?

Plans for the *Acorn User* Show in Harrogate are well underway. *Acorn User* starts a major series on music on your Archimedes. Aleph One releases a 486-based card to make PC emulation even faster than before. Games reviewed include *Ixion* (now re-released by Gamesware) and *Repton 4*, that old chestnut.

March

Acorn User takes a trip with a special space issue, celebrating Acorns at Jodrell Bank, and a journey into *S-Base* (which isn't space-related, but does make a cracking headline).

Acorn announces *Advance*, a combination of a word processor, database, spreadsheet and graphing package for the ludicrous price of £99. Clares tells us all about *Topographer* and *NightSky*. News that Acorn's share price practically doubled overnight in early January is explained as the 3DO company unveils itself. Superchoice goes for Acorn equipment for its Active IT holidays.

The Horizon Project is launched, which aims to develop hoards of multimedia applications. Replay DIY is unveiled by Irlam, bringing full motion video into the home.

April

The *Acorn User* Show opens in Harrogate with huge success reported on all fronts. *Acorn User* revamps its subscribers' disc. Acorn releases the Family Turbo Pack, which consists of an A3010 with *Lotus Turbo Challenge 2* and a joystick for only £499. Colton tells us about *Resultz*, and starts to ship *Wordz*.

April fool stories abound, from connecting your Master Compact to a potato, to a new network handshaking protocol called *MasonNet*. CC hopes to release its long-awaited thesaurus application, but it doesn't actually appear until Acorn World. Acorn produces the *World of Number* CD-Roms. Computer Concepts advertises the *ArtWorks* clip art competition by saying anyone can draw with the package, 'even someone with hardly any artistic ability (like the MD!)'.

May

OCR comes to town with the impending release of three new packages. Schools prepare to enter the Tesco Computers for Schools scheme, while dealers hold their collective breaths. Paul Bedworth, who hacked into computer systems all over the world using his Beeb, is acquitted.

Simtec speeds up the A3010, A3020 and A4000 with some clever motherboard antics. *ProArtisan* is to get a total revamp. *Serenade* from Clares is a hit for music lovers. *Almanac*, that lovable personal organiser, hits our screens. Games reviewed include *Sim City* and *Technodream*. The Moxon Interview starts with Ian Goodall of HCCS, who is seen signing copies at the *Acorn User Show*.

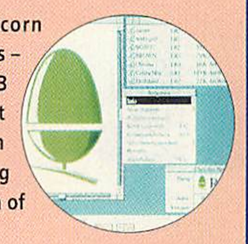
June



Acorn User tests out the top art packages for the Archimedes, and loves *ArtWorks* and *Revelation ImagePro:* still, *ProArtisan* hadn't been fully revamped by then. Acorn announces that it is to kill off the Master 128, breaking hearts all over the world. The FPA arrives – or does it? Arm3 upgrades with vacant sockets arrive, but no chips.

Acorn targets the German market with a German version of Risc OS. 35MHz Arm3 upgrades appear. *Topographer* appears from Clares. *ProCAD* from Minerva also gets a thumbs up. On the games scene, *Zool* ports himself over from the 16-bit market, and Dominik Diamond, then of Gamesmaster, vents his spleen on the back page.

July



The summer might be quiet, but Acorn announces a new package aimed at schools – the Discovery Pack. The Risc OS 3 Programmer's Reference Manual appears at last, but without the Style Guide. Acorn signs a pre-press deal with German printing specialist AB Dick using the German version of Risc OS.

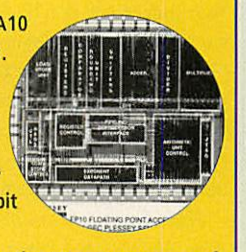
Arm chips are to be used by Texas Instruments. The Acorn World '93 Show is announced in its first adverts. *Axis* gets the games world in a spin. *Resultz* hits the review desk to a spate of terrible headline puns but the reception's good. Ian Copestakes's *Wizzo* purports to break the hard disc speed barrier.

August

Arm Ltd's Robin Saxby spills the beans about the future of Arm chips in Acorn machines, fuelling rumours of Acorn's new range of high-end computers. Acorn shows off the results of its involvement in the MultiWorks multimedia scheme.

Morphing gets a lift on the Acorn with *Morpheus* from Oregan, and *Acorn User's* own morphing suite which changes Stevie Nicks into Miss Piggy. Public Domain Column starts in *Acorn User. Optima* and *Eidoscope* video editing software is investigated. Magneto-optical drives released for the Arc, giving huge storage on convenient removable discs.

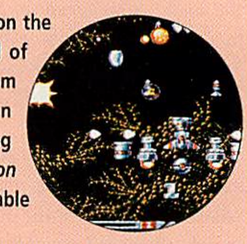
September



Autumn starts with the release of the FPA10 floating point accelerator chip, at last. Computer Concepts and Wild Vision get together to release the ScanLight Video hybrid. The Gamesware label is started up by Simon Lovesey, who leaves Acorn to concentrate on converting games from the 16-bit to the 32-bit platform.

LOOKsystems obtains a licence to convert the Monotype range of typefaces for the Acorn range. Acorn announces *Schedule* for the Pocket Book, to organise your life. *Acorn User* sets itself up on e-mail, and finds the Internet is busier than it thought. Dave McCartney of The Datafile calls a spade a spade on the back page.

October



Acorn User goes cover disc with *Xenon 2* on the cover. Arm3 prices drop after the arrival of the FPA10. The Newton MessagePad, from Apple, is actually available; it uses an Arm610 chip to speed up its handwriting recognition. *Impression Style* and *Impression Publisher* are announced, but aren't available yet.

Ram chip prices rise as a glue factory gets burned down. *Fireworkz*, a combination of *Wordz* and *Resultz*, appears. Acorn moves to a snazzy new set of offices outside Cambridge.

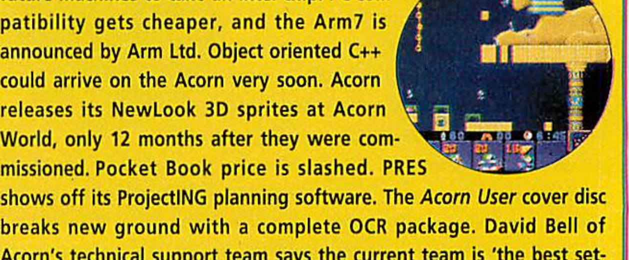
The Journal of Physiology opens its doors to *Acorn User* and shows us we're not the only publication using *Impression.*

November

Acorn World '93 unveiled with pages of show coverage. *ProArtisan 2* is the 'graphics release of the year'. Acorn revamps its computer range by knocking £100 of the A3010 and bundling impressive software.

Acorn makes its consumer video explaining why Acorn machines are so good; it stars John Leslie of Blue Peter fame. Computer Concepts announces the Canon BJC-600 colour printing package. Budget CD-Rom players from Cumana and Morley hit the shops at the same time that Acorn says it will show off PhotoCD at Acorn World. The Psion 3a appears, but Acorn doesn't commit to the new machine as a possible future Pocket Book.

December

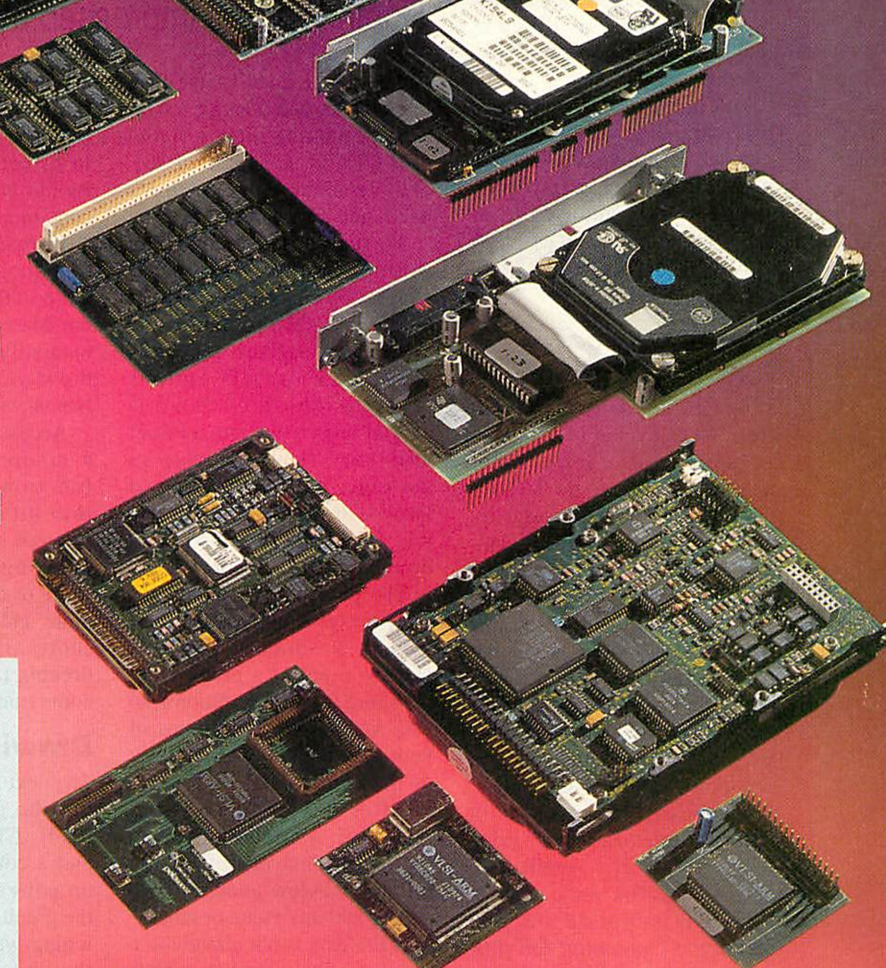


Acorn says it might include a spare socket in future machines to take an Intel chip. PC compatibility gets cheaper, and the Arm7 is announced by Arm Ltd. Object oriented C++ could arrive on the Acorn very soon. Acorn releases its NewLook 3D sprites at Acorn World, only 12 months after they were commissioned. Pocket Book price is slashed. PRES shows off its ProjectING planning software. The *Acorn User* cover disc breaks new ground with a complete OCR package. David Bell of Acorn's technical support team says the current team is 'the best setup ever'. Acorn User's Top 100 games supplement lists every game worth owning, from *Pleb Up Pleb Down* to *Lemmings 2.*



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A3000 Internal Hard Drives
These units consist of a 2.5" drive mounted on the interface card. The unit fits in to the mini expansion slot. Available with an optional User Port to make use of devices such as Concept Keyboards.

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A3010 Internal Hard Drives
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A3020 and A4 Internal Hard Drives
These drives are upgrades for systems that were purchased without the standard Acorn drive. Unfortunately these are dealer fit only and you will need to return your computer for upgrading.

Archimedes (A300 and A400 series) Internal Hard Drives
The drive is fitted in the hard drive slot provided, and the IDE interface is fitted into the podule backplane and can also control a second external hard drive if required.

Archimedes (A300 and A400 series) External Hard Drives
As above except that the drive is supplied in a matching external case.

Archimedes Hard Cards
These drives are mounted on the IDE interface card and will fit in any podule slot on the A300/A400/A540/A5000 series.

A5000 Second Drives
A range of drives that may be used as a replacement to your existing hard drive or as a second internal hard drive.

(Please note: In accordance with the industry convention, all drive capacities are quoted on the basis that 1Mb is equivalent to one million bytes.)

RAM and Processor expansion

RISC Developments produce a full range of RAM upgrades for all machines, including 8Mb boards. Also available is an ARM3 processor upgrade for the A310, A400 series and A3000. The A310 4Mb RAM card also allows RISC OS 3.1 to be fitted without a separate hardware upgrade. All of these items are user fittable except for the A5000 8Mb RAM cards and the ARM3 for an A3000. In these cases, you must return your computer to us for fitting. If you have an A5000 upgraded from 2 to 4Mb, and you wish to upgrade it to 8Mb, you must remove the existing upgrade and purchase the 2 to 8Mb card. If your existing upgrade is a RISC Developments or Acorn model, then we can offer a £60 trade-in on it.



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0146e	A3010 4Mbyte RAM	£129
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5243g	A3010 Internal IDE 120Mb	£379
5245g	A3010 Internal IDE 210Mb	£529
5230g	A3020 & A4 IDE 20Mb	£125
5232g	A3020 & A4 IDE 80Mb	£229
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The Plot THICKENS

Robin Watts is impressed by Clares' new graph plotting

One of the application areas best provided for on the Archimedes scene are programs to produce pretty charts from tables of figures. Packages such as *Graphbox*, *Graphbox Professional*, *Presenter GTI* and *ChartWell* each have their own followers, and seem to have the market pretty well covered.

So is there really space in the market for another such package? Well, Clares obviously believes there is, because in January, at the BETT show, they are to release their own offering, *Plot*.

In common with existing packages, *Plot* will produce all manner of graphs and charts, just by dragging data from a spreadsheet or editor on to its icon, telling it the sort of graph you want and waiting a few seconds.

Mathematical functions

What makes *Plot* different from other available packages is that it addresses another need that seems, so far, to have been pretty well ignored by other software manufacturers – that of mathematical function plotting.

Whereas existing programs tend to be based on producing bar and pie charts from tables of figures, *Plot* also provides more ways of plotting graphs from functions than the mind can comfortably encompass. Simply give it a function (or in more complex cases, a series of functions) and it will produce a *Draw* file of the graph.

Plot is supplied on two discs, one containing the program, and another with the example files to accompany the comprehensive manual. When run it installs itself on the iconbar, and pops up a window containing the registered user's name. A couple of seconds later the window closes itself, and *Plot* is ready to use.

To produce a chart from existing data, say in a spreadsheet, is simplicity itself. Simply select the data to be drawn and use the export as CSV, TSV or SID options (exactly which of these is available in your spreadsheet will vary from package to package, but at least one of these will be there). Drag this file from the save box, and drop it on the *Plot* icon.

The program will automatically detect what type of file it is, and produce a window. Here you select a graph type, set some importing options (so *Plot* knows which columns of your data are which), and click on the Import icon.

After a second or two's churning a window appears with your data in it. Clicking into the window allows you to edit or add any value or label.

If the data is not already in a spreadsheet, you can either type it into your favourite text editor and save it across as above, or select a graph type from the Data Entry menu from the bar, and type the data in directly. Either way, you should end up with a window containing your data.

In many such packages at this stage, if the data is not quite in the form required, you are forced either to change it manually or go right back to the start, and change it there. Not so with *Plot*.

Accessible from the menu is a comprehensive range of functions to transform data into different forms. At the press of a key you can rescale, take logs, reduce to linear form, or even numerically integrate and differentiate data. In short, all your mathematical dreams (or nightmares) have come true.

Drawing a graph

The next step, actually generating the graph, is simplicity itself. Choose a menu item, and a couple of seconds later up pops a window containing the graph. If there is something wrong with it, you can re-edit the data, or change some options and replot it as many times as necessary.

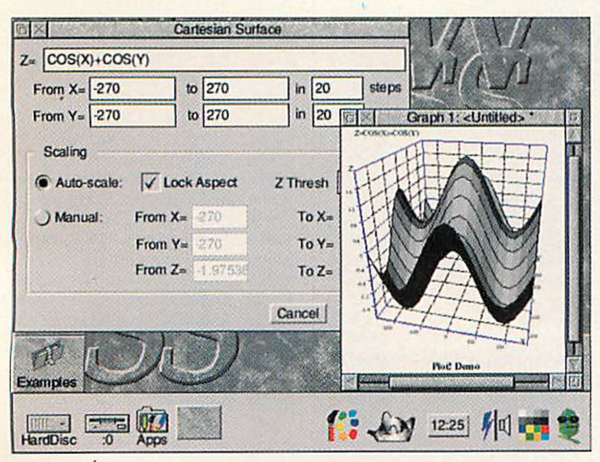
Here is possibly my favourite feature of the package – no matter how much you fiddle with the options, in every graph there is bound to be something you are not quite happy with, be it the position of a label, or the key being in the wrong place.

In most packages this would require the graph to be dropped into *Draw*, and touched up there, which is a hassle on a 1Mb machine. With *Plot*, however, labels and such can be manually adjusted by clicking and dragging them in the display. I love it.

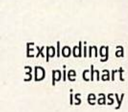
Once you are happy with the graph it can be saved as a *Draw* or *Plot* file, or the initial data can be re-exported as a CSV or TSV file.

The mathematical function plotting facilities are likewise very simple to use. From the icon bar's Formula Plot submenu choose the appropriate type of graph, enter the equations, and click on OK.

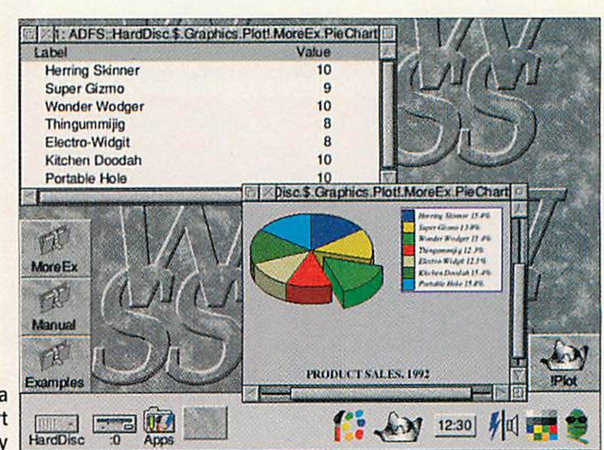
By default the scales for the different axes are chosen automatically, but you can override them and set them manually if you so desire.Control over plotting is as superb here as it

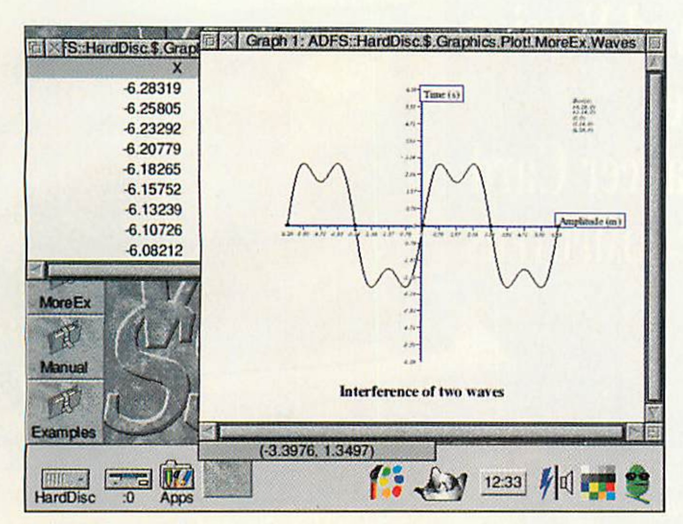


Generating a quite beautiful Cartesian surface graph

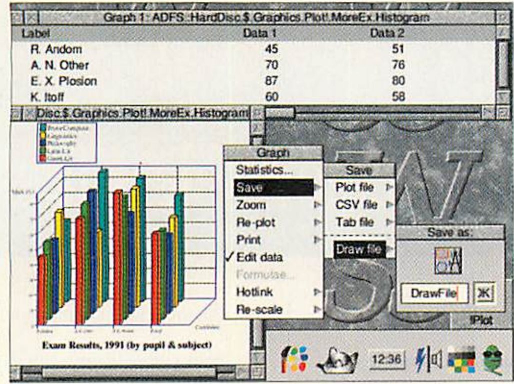


Exploding a 3D pie chart is easy





A simple line graph



A 3D histogram – or bar chart, if you prefer

in the rest of the program. Everything from backdrop colour and pattern to viewing angle on the 3D projections can be altered, and some really nice effects can be achieved.

Plot's usefulness does not stop once the graph has been generated. By moving the pointer over the graph, values can be read off at any point, to any degree of accuracy – perfect for plotting experimental data and making predictions about other readings. In this context, other little touches really make the program stand out – it can guess missing values by linear interpolation, or even ignore some values if they are a bit dodgy.

Conclusion

I love this program – it does everything I could think of, and more. It has obviously been very well thought out, and despite its power, it is still relatively simple to use.

If I had to find something to criticise in the package, I'd probably have to say that the editing of the data is not as intuitive as it could be, with TAB not moving between columns as you would expect, but I am sure Clares will fix this in future versions.

The package is aimed at GCSE and above, and indeed I can see it having uses in Maths, Physics and Geography at secondary school level. I can't help feeling it is a bit expensive for home users, but having said that, it is still competitively priced compared to the other offerings out there.

In short, if you need a graph drawing package, and you can afford it, then I wouldn't hesitate to recommend *Plot*. If you are a school looking for software that will be useful across the curriculum, then this is definitely one for you.

Product details

Product: Plot
Supplier: Clares Micro Supplies
Tel: (0606) 48511
Price: £79.95 inc VAT, with Site Licenses for unlimited numbers of machines costing 3 or 5 times this for primary or secondary schools respectively.

What Plot can plot?

The graphics *Plot* produces can be divided into two categories: graphs and charts.

Cartesian graphs

These are the (x,y) graphs we all used to hate drawing at school. *Plot* can draw these from data we type in ourselves, from equations that give y in terms of x (like y=4x), or from parametric equations (x=f(t), y=g(t)).

The data points can be joined with lines or curves, or left as isolated crosses. Alternatively *Plot* will draw the best fit line or curve for your data. Three-dimensional graphs can be drawn in the same way, and *Plot* can even produce some odd looking 'Ternary' or 'Bubble' graphs from the same data.

Polar graphs

These are the beasts you graduate to hating if you do A-Level maths. Rather than being defined in terms of x and y, they are defined in terms of an angle and a distance from the origin (the middle of the graph).

Plot draws these too, again with lines, curves or points, and can even produce them in two varieties of 3D. Even if you don't understand them, you can still get some very pretty pictures out.

Surface graphs

Rivalling polar graphs for prettiness, though, are 3D surface plots. Again they can be produced from data values or equations giving the height of the graph, z, in terms of x and y.

What really makes these stand out are the shading options. *Plot* can illuminate these graphs in several ways, according to height, or angle of the surface segments, and will even plot the graph as a wire frame.

Histogram charts

These are bar charts to you and me. *Plot* can draw a veritable profusion of different types – all very pretty, but still bar charts. One feature that really impressed me here was the ability to use customised graphics for the bars – you give *Plot* a *Draw* file, and it will stack little copies of it to the relevant height as a bar.

Pie charts

Remember these from Geography lessons? Plot can draw these flat or 3D, and can 'explode' segments out of them slightly to emphasise... well, whatever you are plotting really.

And that's not all...

Plot draws many more types of graph that we just don't have the space to mention here, such as line graphs, cumulative graphs, frequency graphs, lissajous figures and so on.

It also provides some other really nifty features too – graphs can be merged, and their intersection and turning points found; annotations can be set up; asymptotes can be detected and marked automatically; graphs can be differentiated or integrated; data can be reduced to linear form... the list goes on and on, and if you still think this is not enough, version 2 is already in the pipeline.



A New Improved Version of the Graphics Enhancer Card

FOR ACORN RISC COMPUTERS



ColourCard Gold offers a very significant improvement for anyone using their computer for graphics or DTP work.
The card is easy to fit and is 100% RISC OS desktop compatible.

More resolution, more speed, more colours, less flicker !

The main features

- Much higher resolutions, for example 16 colour screen modes are now possible, at five times the screen resolution of mode 12 and three times that of mode 27. Higher resolutions mean more detail and larger desktop areas. NEW

- The 16 bit screen modes are now desktop compatible, which means you can run the RISC OS desktop and compatible applications in 32,000 colour screen modes for stunning quality true-colour work. NEW

- Necessary software is supplied in ROM on the ColourCard. This means there is no need to have special modules in your boot files or to load anything off disc (additional utility software such as our mode selector and example pictures are supplied on floppy disc). NEW

- A special version of Acorn's !Replay movie playback program is included - compatible with all existing movie files, which takes advantage of the 16bit screen modes for higher quality movies than possible from standard computers. NEW

Acorn Replay ™

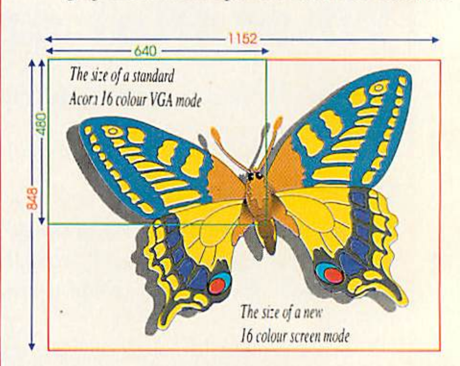
- Faster screen redraw speeds - more speed in the higher resolution screen modes than you ever had before.

- Fully programmable palettes. In 256 colour modes this can dramatically benefit some graphics programs - eg ArtWorks can show four times the number of colours using dithering than it could in old Acorn 256 colour modes.

- 60Hz and higher screen refresh rates to completely eliminate visible flicker and help meet the new EEC guidelines.

- True 256 grey-scale screens - at last perfect on screen reproduction of greyscale scanned images or photographs.

- Acorn video pass-through for guaranteed 100% back compatibility with all existing Acorn or third party, screen modes, and unlike other graphics card this option is built in as standard.



Price still only £249.00+ £6 p&p + vat (£299.62 incl)

ColourCard requires RISC OS 3.1 and one expansion slot. Only a multi scanning monitor can take full advantage of the new screen resolutions. Compatible with all multi-scan monitors and A300, A400, A540, A5000 computers (old A300 machines may require a genlock header to be fitted to the board).
Existing boards can be upgraded - contact Computer Concepts or Wild Vision for details.





E&EO Details are subject to change without notice.

Available from either:

Computer Concepts, Gaddesden Place, Hemel Hempstead, Herts, HP2 6EX Tel 0442 63933 Fax 0442 231632
or Wild Vision, 15 Witney Way, Boldon Business Park, Boldon Colliery, Tyne & Wear NE35 9PE Tel 091 519 1455 Fax 091 519 1929

Show your true colours

Jack Kreindler looks at the state of te art in colour printing on the Acorn platform

The BJC-600 is Canon's latest addition to their BubbleJet range of printers. It bridges the gap between the BJC-800 and BJ-200 (A3 colour and A4 mono printers respectively) making a direct challenge to Hewlett Packard's DeskJet 550C.

The A4 BJC-600 colour printer boasts the latest in inkjet technology, and is a fast (240cps) high-resolution device that offers more dots, sharper lines and richer colour than any printer in its class.

Computer Concepts was extremely quick off the mark in advertising support for the BJC-600 as soon as the printer was launched. Its tried and tested *TurboDriver* software works perfectly, offering the usual goodies including background printing and vastly accelerated print times.

No dithering

The halftoning resolution, screen angle and screen pattern controls are identical to those found in the BJ800 driver. I did expect to see a greyscale dithering option, if only for when printing in monochrome, but alas it was not to be found.

The print quality is just about the best I have seen from any inkjet, excepting the BJC-600's bigger and older brother, the BJC-800. There is virtually no vertical registration displacement (when vertical lines appear staggered) as found in the cheaper and older BubbleJets, and the images rendered by the 360dpi engine leave the HP DeskJets standing.

The strangest thing about the BJC-600 is its liking of poor quality photocopier paper. The best plain paper results came, not from the heavier, high-grade pulp, but from the comparative rubbish that is usually reserved for scrawling down hurried telephone messages.

Whether this has something to do with the mechanics of the improved ink-squirting or the new quick-drying inks I do not know. What I can tell you is that you no longer need to spend a fortune on expensive paper to get dense blacks and rich colours.

The best results, though, came from using special coated paper which does cost considerably more than normal pulp but enhances the printer output more than enough to make it justifiable.

The BJC-600 has a mode specifically designed for printing onto coated surfaces and results in output easily mistakable for that of 300dpi laser.

Of course the BJC-600 is not just limited to producing greyscales of this quality as its four ink cartridges (cyan, magenta, yellow and black) house the ingredients for full 24-bit colour printing as well.

The image of the BMW was a 24-bit file printed at about three times its actual size (making it a 120dpi printout) and clearly shows the BJC-600's ability to reproduce photographic quality colour even at low resolutions.

Text, as has been described above, is hard to distinguish from a laser's efforts, but what about those all important pictures? *Impression Style* and *ArtWorks 1.5* are both capable of handling TIFFs, Acorn 24-bpp sprites and even 32-bit CMYK images.

Deep sprites

24-bit bitmaps have never been printable through desktop applications but with Computer Concepts' two main software products, scaling, rotating, to a limited extent editing, and of course printing deep sprites is now possible. Without requiring any gamma correction, as is essential with printers like the HP 550C, photographic quality images can be quickly and accurately reproduced.

With plain paper, greatly enlarged sprites can appear a little washed out, but for most purposes, the results are nothing short of brilliant.

Computer generated graphics use much purer colour compared to the dithered, composite-type colour contained in photographs. Beautiful blends can be easily produced in programs such as *ArtWorks* and *ProArtisan 2* and look stunning on screen, but these graphics can be far more difficult to translate to paper with the same clarity as can photographic images.

Printing *ArtWorks* clip art files I found that darker blues tended towards purple and that black cut in quite sharply at 50% lightness in blends from primary colours to black, for instance.

Computer Concepts is working on CMYK gamma-correction software offering control over 'ink-linearity' which should solve the problem completely. Though the solution may not be around for some time yet, this does not condemn the BJC-600 in any way.

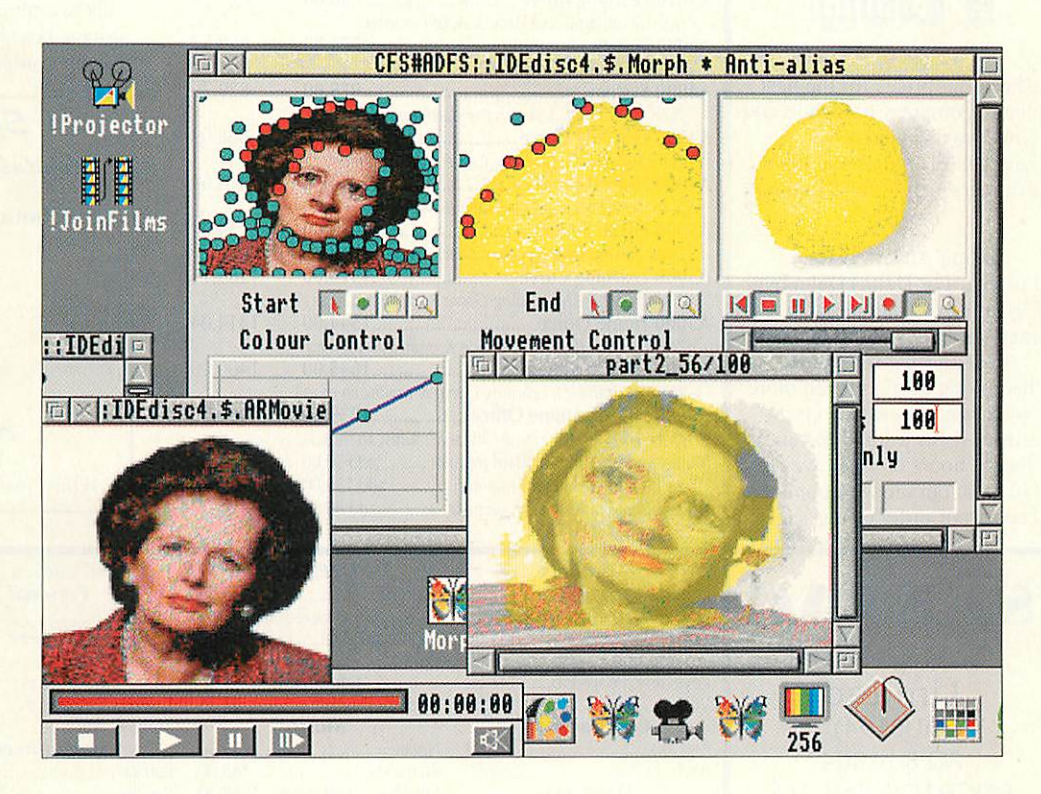
The Canon will give you exactly what you push down the parallel cable, and with a little consideration at the design stage, the desired output can be brought as close to perfection as you'll get this side of a dye-sublimation printer.

In conjunction with the ColourCard Gold and either the new *Impression Style* or *ArtWorks 1.5*, the BJC-600 enables Acorn users to finally break the colour barrier. The ColourCard's new 32,000 colour desktop screen modes let you import, visualise and output the kind of images that have been managed by Macs and PCs for ages.

Though a latecomer to the world of true-colour graphics, the Acorn platform now offers a certain level of support, and with the BJC-600 represents a cheap and powerful alternative to conventional entry-level colour publishing and graphics systems.

Product details

Product: BJC-600 + TurboDriver
Supplier: Computer Concepts
Tel: (0442) 63933
Price: £549 + £10 delivery + VAT



Top of the form

Jack Kreindler takes a look at Oak Solutions' new morphing package, and finds it worth paying for

It seems that more and more people are seeing morphing as a powerful tool for image manipulation and computer animation, not just using it for the sake of turning Margaret Thatcher into a lemon with seamless perfection.

Oak Solutions' *Rephorm* is the latest morphing application to hit the software shelves. It is only the second of such programs so far released, following *Morpheus* from Oregan. The big question is whether Oak Solutions can reform the market with *Rephorm*, or have Oregan cornered it already?

Before loading it, I was happy to find that the software was just as content running on my antiquated A3000 using Risc OS 2 and a meagre 1Mb Ram, as it was on my A5000 clad with the latest upgrades.

In practice, there was a considerable (but expected) difference in performance. With an Arm 3 processor (as in the A5000) *Rephorm* really does shine.

WHAT YOU GET

The package comes on three discs: the main editor disc, and two support discs containing examples of sprites, morphs, *Replay* film and animation viewing facilities. Once loaded, *Rephorm* sits on the icon bar as a multi-coloured butterfly periodically flapping its little wings. Nice touch.

There is a single application window containing the start and finish sprites, colour and movement control, the image manipulation tool and a thumbnail preview box. Having all this at your pointer-tip is a real advantage.

To get started all you do is drop your start sprite in the start box, the end sprite in the end box, and you're off. The conventional system of a fixed-sized grid marking the transition areas has not been adopted, but instead *Rephorm* allows you to place 'control-points' by creating triangles, which enables you to achieve much more accurate colour and movement transitions.

Both the start and end sprites have their own tool bar, which lets you place a control point in the appropriate place on the start sprite and move the equivalent point into position on the end sprite, for instance, without the need to toggle between tools every time.

There are some problems with the single window approach, though. The size of the sprite boxes cannot be altered, so zooming into a sprite to position control points accurately nearly always requires moving the image around to locate a desired area.

Another problem is that in modes larger than 800x600 pixels, the single window becomes too small for comfort, so those with graphics upgrades have to reduce themselves to Mode 28. Contrary to this, *Rephorm* supports processing and output of 256-greyscale, 16bpp (65,000 colours) and 32bpp (4 billion colour) imagery.

At the editing stage there are various options for previewing your morph. The preview box or 'thumbnail' display is designed to give the user a thorough picture of how the final animation will look and has quality options for resolution and anti-aliasing.

By default, the thumbnail generates the middle frame of the morphing sequence – preset as frame ten. This is more than enough for previewing purposes, but the number can be raised up to 999.

A unique feature of *Rephorm's* thumbnail box is that it's not restricted to displaying the middle morph – it can be previewed at any frame along its course or as a complete animation.

Rephorm's remarkable speed comes into play here. I carried out a test in Mode 28, for the 160x128 pixel thumbnail, morphing a massive 200 control areas.

At top resolution with anti-aliasing it managed to generate 10 frames in 20 seconds. Without anti-aliasing this doubled to one frame per second, and with reduced pixels the speed doubled again.

Generation of the full morph is initiated by dragging either a sprite file, *Replay* file, or *Projector* file into a destination window. Films can be compiled as compressed or standard data, and when fully generated can be cut, spliced and played back on the appropriate software provided.

Despite the drawbacks to its single-window simplicity *Rephorm* is a first-class program and a very fast one at that. Though more expensive than *Morpheus*, it represents a worthwhile investment for the serious morpher, and can easily be recommended.

Product details

Product: Rephorm
Supplier: Oak Solutions
Tel: (0954) 211760
Price: £49.95 + £2 p&p + VAT

Three copies of ProArtisan to win

ProArtisan 2 is the latest development in the sucessful Artisan series from Clares, and as you will have found out if you've tried the demo on November's cover disc, it's the graphics release of the year.

The feature list is huge. Works in a window on an image of any size or proportions; works in any mode but always retains a 256 colour reference image; all tools work in zoom mode at any magnification; colour opacity can be selected and applies to brush and spray; sprays; fills; special effects; pencil, inkpen and magic brush options; texture brushes; blend option; drawing menu has standard shapes in solid or outline with definable line widths; text input using outline fonts; *Draw* file import; visible grid option with optional lock; sprite options for cutting, drawing, distorting, rotating, scaling etc; magic wand for cutting sprites; unique simplified print option; fully integrated frisket, defined by colour or shape, enables you to work only on selected areas; most options can be used with the frisket; a full complement of image processing features are provided in the form of filters which include mono; lighten, darken, contrast, emboss, block and sphere.

What you have to do

If you want to know more about *ProArtisan*, contact Clares on (0606) 48511. Meanwhile we've got three copies of this exciting new art package to give away, each worth £135.

All you have to do is spot the differences between the two pictures on this page(which were created with *ProArtisan*), jot them on the back of a postcard along with your name and address, and send it to: ProArtisan Competition, *Acorn User*, Europress Enterprise, Europa House, Adlington Park, Macclesfield SK10 4NP. The competition closes 31 January 1994.





Slueth winners

Congratulations to the winners of our Sleuth competition back in October. The correct answers were Sherlock Holmes; The Bible; and the Font Cache, and five copies of Sleuth from Risc Developments are winging their way to the following lucky readers:

Brett Gibson, Dartford
Philip Foster, Cambridge
Allan Harris, Haxby
Sam Cave, Bournemouth
Simon Westwood, Newark

ARM3 upgrade with floating point accelerator (FPA) option £139

ARM3+FPA fitted and tested £199

The ARM3 upgrade increases the speed of your computer by a factor of 3 (typically), and sometimes even more. Acorn's new floating point chip, the FPA 10, speeds up maths operations previously emulated by software.

A 68-pin socket is provided on the ARM3 board, and the FPA chip can simply be plugged in at any time.

The upgrade uses a high quality 4-layer circuit board. It may be fitted to the A305, A310, A440, 400/1 series and the A3000. Installation is straightforward for the 300 and 400 series computers. A 3-day fitting service is available if required. Please note that the A300 series and old A440 require the MEMC1a upgrade.

25MHz ARM3 – **£139**
MEMC1a – **£25** Floating point chip – **£99**
ARM3 with FPA fitted – **£199**

35MHz ARM3 – only £139

We still have limited stocks of these ultra-fast ARM3 upgrades. Some of the most popular Archimedes applications (such as Impression, Artworks and even BASIC V) do not gain anything from the FPA10. So, for those using Impression or Artworks extensively, the 35MHz upgrade is the only logical choice. Please write or phone for full details.

Our usual money-back guarantee applies to all ARM3 upgrades.

A3000 memory – 4Mb £99

An easy to fit and reliable RAM upgrade. Gold plated connectors ensure long term reliability. This upgrade uses a four-layer circuit board as recommended by Acorn. No soldering needed.

2Mb RAM board (upgradable to 4Mb) – **£50**
4Mb RAM – **£99**
Bare board (without RAM chips) – **£25**
2Mb to 4Mb upgrade – **£63**

A3010/A3020/A4000 RAM

These machines may all be upgraded by easy to fit, plug-in components. No soldering is required.

A3020/A4000 extra 2Mb – **£58**
A3010 extra 1Mb (2Mb total) – **£35**
A3010 upgrade to 4Mb – **£125**

All products fully guaranteed. Many products also carry our 14-day money-back guarantee too. Please phone for details.

This month's specials

4Mb RAM for A310	£119
2Mb RAM for A310	£75
2Mb RAM for A5000	£69
Impression II	£115
Artworks	£120

RISC OS 3

Acorn's new operating system for their range of RISC computers. The old version of RISC OS (2.00) is just 512K long, whereas OS 3 contains 2Mb of code. Many applications which were previously supplied on disk are now contained in the OS ROMs. These include improved versions of Draw, Paint and Edit. Because they are available on ROM they are always instantly accessible, and also occupy less RAM space.

Other features include extra "background" operations. For example, disks can now be formatted or files copied while the machine is used for other purposes.

RISC OS 3 may be used on the A305, A310, A440, 400/1 series, A3000, A540 etc.

RISC OS 3 £75
A305, A310 and A440 owners please note. You will need to install the RISC OS Carrier Board in order to use RISC OS 3. The RCB may be used with any version of RISC OS. The carrier board is compatible with memory boards, ARM3 upgrades and does not in any way obstruct expansion cards ("podules").

RISC OS Carrier Board £18

A5000 systems & memory

A5000 with RISC OS 3, 80Mb hard disk, multisync monitor and ARM3 – **£1399**
A5000 learning curve – **£1445**
Free 4Mb RAM upgrade included in the price.

2Mb memory board (4Mb total) – **£75**
A compact board measuring just 104mm by 49mm, this design fits vertically in your machine. No soldering required. Unlike larger boards, there is no need to remove the disk drive. Four-layer design as specified by Acorn. A bare board (ie without the RAM chips fitted) is also available.

Hard disk upgrades

A range of fast SCSI or IDE internal hard disks with a year's warranty, in sizes from 40Mb upwards. Complete systems supplied with all metalwork and cables. 400/1 machines merely require the drive and controller card, 300 series require a backplane.

40Mb SCSI – **£180** 85Mb SCSI – **£210**
120Mb SCSI – **£250** 210Mb SCSI – **£320**
Fast 16 bit SCSI card – **£100**
50Mb IDE – **£160** 120Mb IDE – **£250**
IDE controller card – **£75**
(add £75 for external version of SCSI disks)

Various

Aleph One 386 1Mb PC Card – **£390 (4Mb £475)**
Aleph One 486 1Mb PC Card – **£490 (4Mb £575)**

Free price list available upon request. Prices exclude VAT.

A300 series upgrade column. 2Mb £89, 4Mb £128

Memory expansion

Extra memory is without doubt the most worthwhile addition to any A300 series machine. Some programs won't even run with only 1Mb, and 2Mb is a bare minimum. Certain applications, desktop publishing for example, benefit from a 4Mb system.

1Mb to 2Mb – £75 **1Mb to 4Mb – £128**

Upgrade from 2Mb to 4Mb (self fit) **£65**

Compatibility. The memory is detected and used by the machine automatically, so there are no special commands needed. Works with both RISC OS 2 and RISC OS 3.

Fully compatible with ARM3 upgrades, backplanes, hard disks etc. This upgrade is supplied on just one compact board measuring only 195mm by 46mm. Four-layer circuitry reduces electrical noise for trouble-free operation. The 2Mb upgrade may be upgraded to 4Mb later by the user, without any soldering. A copy of the fitting instructions is available free of charge.

A complete fitting service is available for our RAM boards covering courier collection, installation and testing, MEMC1a, return delivery and guarantee. This is normally a three-day service (eg. collected Monday, returned Wednesday). We have been upgrading 300 series computers for nearly four years, and during that time a reliability record second-to-none has been established.

Is there any other 300 series RAM upgrade which has been available for as long as this one, and which has the same reputation for quality and reliability? No.

Still not sure? Compare it with the competition before making up your mind. Use our 14-day money-back guarantee to check it out for yourself.

RISC OS Carrier Board £18
This is an easy to install adaptor board for the larger RISC OS 3 ROMs. A set of links on the board allows it to be used with RISC OS 2 and easily adapted for RISC OS 3 later. Suitable for use with the A305, A310 and A440. The adaptor has been fully tested with RISC OS version 2 and version 3. It is fully compatible with other hardware upgrades such as the RAM board described above, ARM3's, backplanes, VIDC enhancers and expansion cards.

4-slot backplane with fan £53

Combination deals

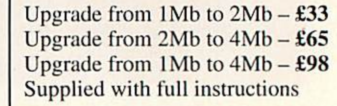
4Mb with MEMC1a, self fit **£152**

Collection of your computer, installation of 4Mb of RAM, MEC1a and RISC OS Carrier Board, testing, full guarantee and return delivery **£189**

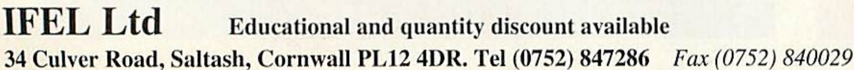
As above, but with 2Mb of RAM **£135**

(Add £40 to have RISC OS 3 fitted at the same time)




RAM for 410 & 420

Upgrade from 1Mb to 2Mb – **£33**
Upgrade from 2Mb to 4Mb – **£65**
Upgrade from 1Mb to 4Mb – **£98**
Supplied with full instructions


IFEL Ltd **Educational and quantity discount available**
34 Culver Road, Saltash, Cornwall PL12 4DR. Tel (0752) 847286 *Fax (0752) 840029*

Problems with your mouse balls, tailoring your desktop, exploring the font cache? They're all explained right here

QUESTIONS & ANSWERS

Q My mouse is proving to be really irritating: it keeps slipping and refusing to move in various directions. Do I need a whole new mouse, or can I just buy a replacement ball?

J Hughes
Stockport

A The solution rather depends on the problem, unsurprisingly enough. If your mouse is just slipping – in other words it doesn't seem to be moving the pointer quite as quickly as you think it should be – then the problem could be with the mouse ball.

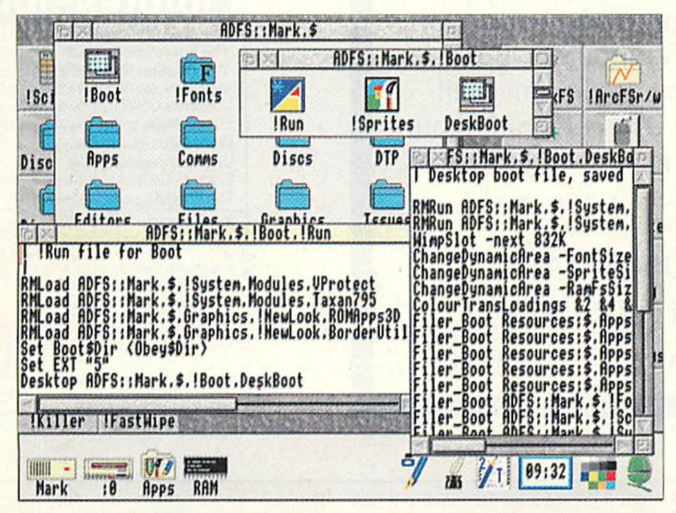
A quick solution is to soak your mouse ball in water overnight, which helps to clean it and make it grip slightly better. It would be probably wise to invest in a new one, as they are only a few pounds and can fix the problem completely.

However, you could have a more serious defect inside the mouse mechanism.

For example, there is a spring which pushes a small wheel against the ball, and after a while it can lose its tension, making the ball slip.

Getting a new mouse ball won't solve this problem, you'll have to invest in a new mouse.

If, on the other hand, your mouse simply refuses to go in one direction – say the pointer only ever moves in the left-right direction – you probably have an electrical fault with the mouse, and it should be replaced. Mice are available from most Acorn dealers, and Clares make their own: contact them on (0606) 48511.



A typical boot sequence, set up to load modules before the desktop starts

Q I keep reading about new versions of modules which need to be loaded before starting the desktop, but whenever I try to double-click on them I get a message like 'Use *Desktop to start SCSIFiler'. I also want to be able to change template and message files held in Rom, but I don't know how to do this. Can you help?

M Trestle
Bournemouth

A The problem with changing modules which are used by the desktop is that you can't load them when the desktop is running. There is, however, an easy way of altering your boot sequence so these modules are automatically loaded before the desktop is started.

First, create a directory called *!Boot* in the root directory. Open this directory by double-clicking on it while holding down SHIFT, and save your normal desktop boot file, calling it *DeskBoot*.

Now use *Edit* to create an Obey file containing the following lines:

```
RMLoad
ADFS::HardDisc.$.!System.Mod
ules.SCSIFiler
Desktop
ADFS::HardDisc.$.!Boot.DeskB
oot
```

and save it as *!Run* inside *!Boot*. Note that if you want to load any other modules, like a virus killer or a module to change the desktop welcome message (see *INFO, September 1993), then you should also put these here.

This file will, in fact, be run before the desktop is active, so you can do anything you want here without getting the errors you normally would.

The final step is to press F12 and type:

```
Configure Language 19
```

to make sure the computer doesn't switch on into desktop mode straight away. A lot of modules don't mind if the above configuration is missed, but it's better to be safe than sorry. If you want to use new versions of template or message files, it is an easy matter to add a few lines to your *!Run* file to cater for this. All you have to do is copy the original from the Resources filing system to your hard disc (I put mine inside my *!System* directory inside a directory called *Resources*), and edit them as you please. Examples of editing these files are tailoring the Palette application's Mode submenu, or altering templates to include different sprites.

Now you should add two lines like the following to the start of your *!Boot.!Run* file:

```
Set Palette$Path
ADFS::HardDisc.$.!System.Res
ources.Palette.
RMReInit PaletteUtil
```

and the new files will be used in place of those resident in Rom. Note some built-in applications do not have path variables to alter, in which case you can use the *Register* program from November 1992's *INFO to include any files you like in the Resources filing system.

Q How can I tell which fonts are cached in the font cache, and how much memory is free? Also, is there any way in which I can save the state of the font cache, and how can I clear it down to zero? Whenever I try to drag it to 0K it won't budge beyond 32K.

S Osborne
St Albans

A The easiest way to tell what state your font cache is in is to press F12 and type:

```
FontList
```

followed by RETURN. This will list all the fonts cached at present, along with how much memory they take up, what point sizes they are and the total memory state of the font cache. Press RETURN again to return to the desktop.

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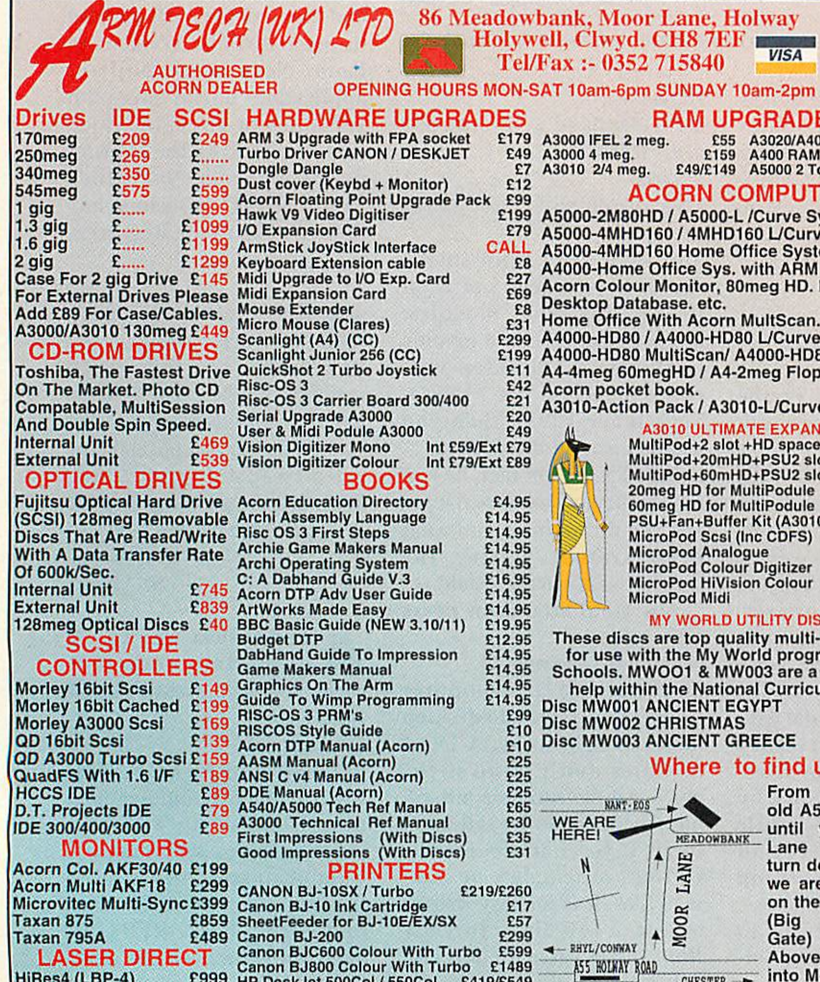
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There is a command which saves the contents of the font cache into a file of type &FCF (Cache). TIt has the syntax:

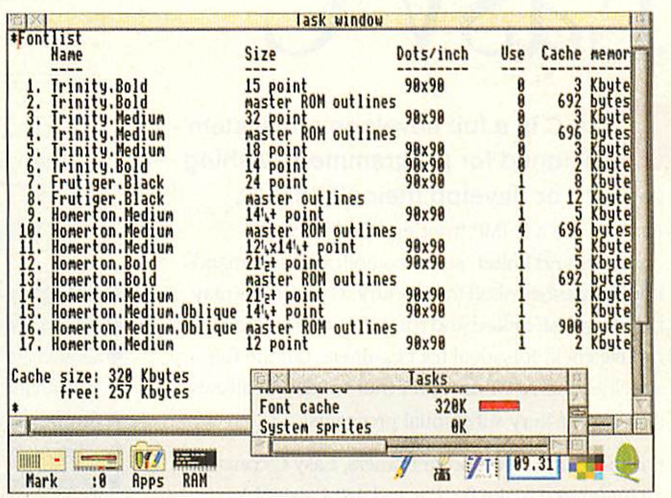
`SaveFontCache <filename>`

so simply press F12 and type the above (substituting <filename> with the filename you wish to save the cache as), followed by RETURN twice. This can then be loaded up using the command:

`LoadFontcache <filename>`

Unfortunately you can't use this command while the font cache is in use (in other words when the desktop is running), so you'll have to include it in a boot sequence as described in the last question.

Finally, the reason that you can't drag the font cache to 0K is down to some applications using the font cache, and not 'letting go' until they are quit. A notable offender in this way is *Impression*: try quitting *Impression*, and you will find you can drag the bar to zero.



Using FontList to show the state of the font cache

UPDATE

Jonathan George wrote in to remind us that is it easy to give your directories sprites, as asked by C Woolk in October.

As described by Peter Greenham in the August issue, you can use so-called 'areas' to neaten up Filer displays. Here's how:

- Create your directory calling it, for example, *Games*.
- Inside this directory save a sprite file called *!Sprites* which contains a sprite called *!games*. This will be the sprite used to display the directory in directory displays.
- Use Edit to create an Obey file containing the following lines:

```
Set Games$Path <Obey$Dir>
Filer_OpenDir Games:£
```

The advantage of this method is that you can replace Games with any name you want, and you are not limited to 10 characters as with ADFS.

- Now create a directory called £ inside *Games*.
- Finally rename *Games* to *!Games*, and reset your computer. This enables you to create directories with icons, instead of the normal blue folder icon. Thanks, Jonathan.

If you've got a problem, drop us a line at Questions and Answers, Acorn User, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP, and we'll do our best to answer.

Customer hotline

Screen mode blues

It is possible to extend the range of screen modes available under Risc OS by loading modules which supply the operating parameters for additional modes. By convention these modes are numbered in the range 64 to 127. Modes 128-255 duplicate 0-127 in terms of the display width, height and pixel depth.

However, a problem can arise when a sprite created in a screen mode not provided within Risc OS as standard is loaded on another computer which does not have that screen mode available. The screen mode number is the critical piece of information which determines the width, height and pixel depth – without this the sprite cannot be successfully displayed on the screen.

To get around this here is a Basic program which will examine a sprite file and replace any mode numbers not understood on your computer with a different one. Since this process is essentially one of guesswork the program also allows an existing mode number to be changed too so that you can re-run the program and change to a different mode number.

In the interests of keeping the listing short we have kept error detection to a minimum, so be careful to type it in accurately.

The table below shows the screen mode numbers to try – if you know the properties of the unrecognised mode number you can get the correct replacement from the table, otherwise experiment

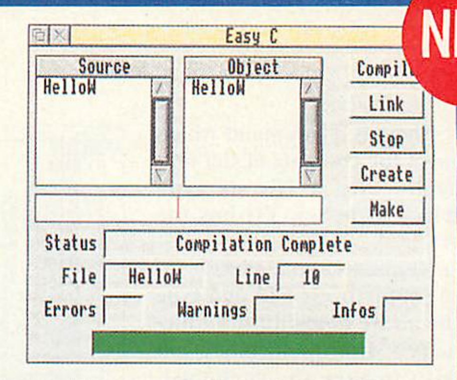
To use the program put the mode number you want to try into line 20, and ensure line 30 reads -1. Make a copy of the sprite file so that you still have an original in case anything goes wrong. Run the program and them

	2 colours	4 colours	16 colours	256 colours
Rectangular pixels	0	8	12	15
Large square pixels	4	19	13	
Small square pixels	18	19	20	21

```
10 DIM word 4
20 force_mode=12  :REM this is the mode to use instead
30 change_mode=-1 :REM change any occurences of this
mode too
40
50 INPUT "Filename "A$
60 handle=OPENUP A$:IF handle=0 THEN PRINT "Can't open
file":END
70
80 n_sprites=FNRead(0):sprite_base=FNRead(4)-4
90
100 REPEAT
110     sprite_mode=FNRead(sprite_base+&28)
120     SYS "XOS_ReadModeVariable",sprite_mode,0 TO
;flags
130     IF ((flags AND 2)>0 OR sprite_mode=change_mode)
THEN
140         PRINT "Changing from mode ";sprite_mode;" to
";force_mode
150         PROCwrite(sprite_base+&28,force_mode)
160     ENDIF
170     n_sprites-=1
180     sprite_base=FNRead(sprite_base)+sprite_base
190 UNTIL n_sprites=0
200
210 CLOSE #handle
220
230 PRINT "Finished"
240
250 END
260
270 DEFPROCwrite(pos,data):!word=data:SYS
"XOS_GBPB",1,handle,word,4,pos:ENDPROC
280
290 DEFFNRead(pos):SYS
"XOS_GBPB",3,handle,word,4,pos:=!word
```

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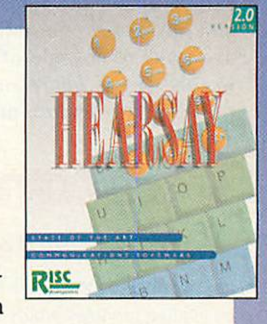
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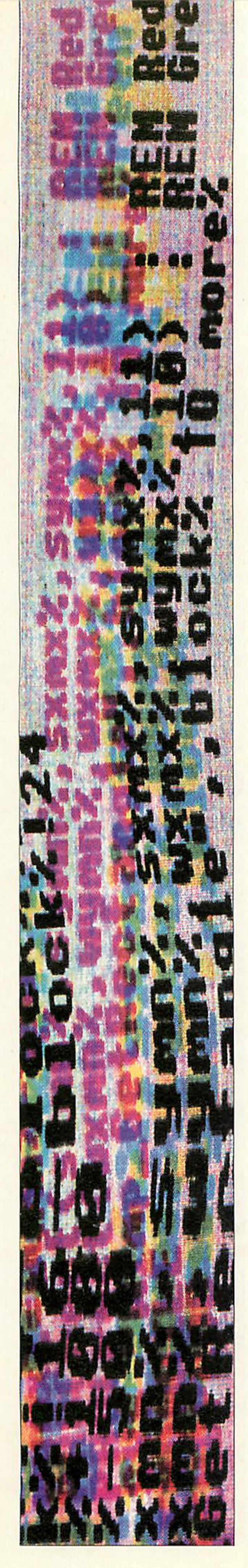
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Back to Basics

In part six of his series on Basic program, Mark Moxon looks at more control statements, and decides that arrays are more useful than they seem

This month I'm going to look at the final control statement as promised: the FOR-NEXT construction. However, before getting stuck into this particular delight, I'm going to talk about a new type of variable – arrays.

They allow sets of data to be stored together under one variable name, in a similar way to a card database allows a number of items of data to be stored on one card. The easiest way to imagine a simple array is if I show you an example. Arrays are defined using the DIM command, as in the following line:

```
DIM array$(10)
```

This line defines an array of eleven string variables (because of the dollar sign). These can be referred to using the names array$(0), array$(1) and so on, up to array$(10). These array variables act just like normal variables, so you can assign them with commands like:

```
array$(3)="Hello"
```

and you can print them with lines like:

```
PRINT array$(6)
```

However, the real power of arrays is that you can use other variable names inside the brackets. So, assuming we have defined a variable called index%, we can refer to the string array$(index%). Have a look at Listing 1: here we define an array using the DIM command (line 5) and assign values to the four elements in that array in lines 6 to 9. Now the user inputs a number from 0 to 3, and print out the contents of the array.

n this case, the array contains English versions of the numbers, showing how you can easily write a program to convert numbers from digits to English. For example, if the user enters the number 2, the program prints array$(2), which contains "Two".

There is an added flexibility to arrays which can prove invaluable when writing programs which deal with stored data. Arrays can be defined to be two-dimensional, which means you can include two numbers inside the brackets. Now don't worry, there's nothing confusing about two-dimensional arrays, it just means that you can refer to the elements of an array in a different way.

For example, take the array definition:

```
DIM array(5,25)
```

This contains numerical elements which can be referred to using two numbers, such as array(3,7) and array(1,20). The rule is that the numbers you put inside the brackets when referring to elements of the array cannot be more than the corresponding numbers when you defined it, so the numbers in the above definition can be between 0 and 5 (for the first number) and 0 and 25 (for the second). At this stage people normally worry a bit and wonder what on earth the value of all this is, and why anyone should want to define a set of variables which you still have to treat like any other variable. Well, the real power comes in the ability to use variable names inside the brackets when referring to array variables, but before I can show you how really flexible this is, I have to explain the last of our control structures, as promised last month.

Listing 1

```
REM >Listing1
:
ON ERROR REPORT:PRINT " at line
";ERL/10:END
MODE 0
DIM array$(3)
array$(0)="Zero"
array$(1)="One"
array$(2)="Two"
array$(3)="Three"
REPEAT
 INPUT "Input number (0-3)
:"index%
 PRINT array$(index%)
UNTIL FALSE
END
```

For-next loops

The FOR-NEXT construct is an easy one to understand. Basically a FOR-NEXT loop is executed a specific number of times, unlike a WHILE-ENDWHILE or REPEAT-UNTIL loop which may be executed an unpredictable number of times. In its simplest form a FOR-NEXT loop takes the following form:

```
FOR var=start TO end
...
NEXT var
```

The statements inbetween the FOR and NEXT lines are executed again and again: the first time they are executed, the variable var has value *start;* the next time var *has value* start+1; next time it's start+2; and so on, until var has value end. So a loop starting:

```
FOR var=1 TO 10
```

Listing 2

```
REM >Listing2
:
ON ERROR REPORT:PRINT " at line
";ERL/10:END
MODE 0
INPUT "Give me a number ";num%
FOR loop%=1 TO num%
 PRINT "Loop number ";loop%
NEXT loop%
END
```

would execute ten times, with var=1 for the first time, var=2 for the second and so on, up to the last time when var=10.

For an example of a FOR-NEXT loop in operation, try out Listing 2. This asks for a number from the user, which is put into the variable num%. A loop is then executed, incrementing the variable loop% from 1 to the value of num%, printing out a line "Loop number ..." each time. So, for example, if you enter 5 at the prompt, you'll get five lines printed out, numbered1 to 5.

Address database

All this explanation has now, at last, bought us to our practical program for the month. It's a (very primitive) address database, capable of storing up to 25 names and addresses, and searching through the names for occurrences of strings you choose to enter. Not bad for just 30 lines of code, don't you think.ry running Listing 3. To use the program, enter A or S (capitals, please) to enter a new address, or search for a name respectively. To enter an address, simply enter the name, followed by RETURN, followed by three address lines (each ended by RETURN). If you get a 'Records full' error you have entered 25 names: that's the limit as set in line 5; change the number 24s in line 5 to increase the limit.

To search for entries containing a certain string in the name field, choose the S option. Now type in your search string, and any matches will be shown. Note that a search string of "Jul" would match "Julie" and "Julian", but not "John" (unsurprisingly).

T0hat's all there is to Listing 3, but you can see how this can easily be extended into a complete address database, with record deletion and searching on other fields in the database. Just to hammer home how arrays and FOR-NEXT loops work, here's a breakdown of Listing 3.

Line 5: Two arrays are defined, one called name$ with 25 entries (0 to 24), and one called addr$ with 25 by 3 entries (0 to 24, 0 to 3).

Line 6: Start an endless REPEAT loop.

Line 7: Get the option into the variable opt$.

Line 8: Start a CASE construct depending on the option .

Line 9: If the user wants to add a record (opt$ is "A")...

Lines 10-11: Set the variable temp% to point to the first entry in the array which is empty. We do this by setting temp% to 0, and looking through the array until we find an empty name$(temp%), or we reach the end of the array (in which case temp% will be 25).

Line 12: If there is an empty entry in the address database, then...

Lines 13-16: Get the user to input the name and address of the entry. Note that temp% is the number of the blank entry in the array, so we enter name(temp%), addr$(temp%,0) and so on.

Lines 17-18: If we get here, there are no blank entries, so print an error message

Line 19: Terminate IF construct started in line 12.

Line 20: If the user wants to search for a record (opt$ is "S")...

Line 21: Get the search string into search$.

Line 22: Start a FOR-NEXT loop. This loop will enable us to search through each of the entries in turn, so we want to look at entries 0 through 24. This can be done using a FOR-NEXT loop, starting the variable loop% at 0 and incrementing it through to 24.

Line 23: This line looks at the current name we are searching through, and checks to see if the name contains the search string. The INSTR command returns a value greater than zero if name$(loop%) contains the string search$ – in other words if we have a match. If we do have a match, then...

Lines 24-27: Print "Match found" followed by the entry.

Line 28: Loop back to line 22 to search through the next record, until we reach the last: when loop% is 24.

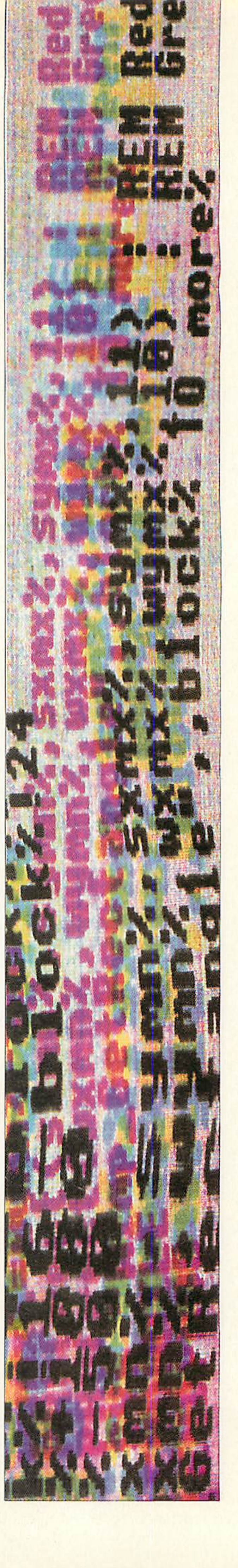
Line 29: End the CASE.

Line 30: Loop back to the prompt for Add or Search.

That's all we have space for this month. Next time we progress into the land of procedures and functions.

Listing 3

```
REM >Listing3
:
ON ERROR REPORT:PRINT " at line ";ERL/10:END
MODE 0
DIM name$(24),addr$(24,3)
REPEAT
 INPUT "Option (A)dd,S(earch) ";opt$
 CASE opt$ OF
  WHEN "A"
   temp%=0
   WHILE name$(temp%)<>"" AND temp%<>25:temp%+=1:END-
WHILE
   IF temp%<>25 THEN
    INPUT "Name ";name$(temp%)
    INPUT "Address 1 ";addr$(temp%,0)
    INPUT "Address 2 ";addr$(temp%,1)
    INPUT "Address 3 ";addr$(temp%,2)
   ELSE
    PRINT "Records full"
   ENDIF
  WHEN "S"
   INPUT "Search name",search$
   FOR loop%=0 TO 24
    IF INSTR(name$(loop%),search$)<>0 THEN
     PRINT "Match found"
     PRINT "Name: ";name$(loop%)
     PRINT "Address
:";addr$(loop%,0);",";addr$(loop%,1);",";addr$(loop%,2);
","
    ENDIF
   NEXT loop%
 ENDCASE
UNTIL FALSE
```





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QD Bug is the definitive debugger for all ARM coders both beginner and expert. It has many powerful features including: single stepping, skip and force instructions, SWI history lists and trapping, customised flexible windowing system, view BASIC sources and text files from within the program, keypress emulation with macro record and playback.

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Sleuth OPTICAL CHARACTER RECOGNITION

NEW

Sleuth is an Optical Character Recognition (OCR) package which converts human readable images of text into machine readable form.

Sleuth processes a scanned image of printed material and converts it into an ASCII file which may be further processed using a text editor or word processor. It is ideal for converting magazine articles, newspaper cuttings, legal documents, program listings, other resource materials etc. etc.

Sleuth version 1.0 is a low-cost entry package into OCR and produces excellent results on a range of typefaces. It is the first in a planned family of products which will take OCR on Acorn machines to full professional level. Any future OCR products will be available as upgrades to existing users.

- Fully RISC OS compliant and multitasking
- Sleuth recognises most PostScript fonts and other similar fonts (not bold or italic)
- With good quality 400 dpi images, Sleuth can achieve over 97% accuracy
- Converts text at speeds of 80-250 wpm
- User definable 'zone' used to choose which rectangle on the image to convert
- Handles sizes 9-24pt (you will need a 400 dpi scanner for good results below 12pt)

To use Sleuth you will require a scanner with a minimum resolution of 200 dpi. For best results you will need a 300 or 400 dpi scanner.

● ***Sleuth £49***

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Masterfile is fast, easy-to-use and provides powerful data management facilities suitable for home, education and business use.

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'...it is certainly the best hard disc backup utility that I have ever used.' ARCHIVE Apr 92

● ***Hard Disc Companion £45***

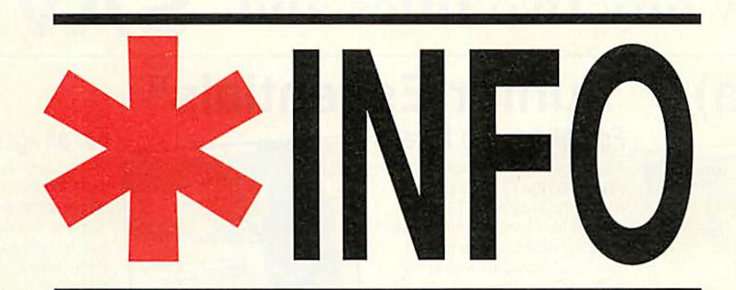


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YANG-LEE SETS

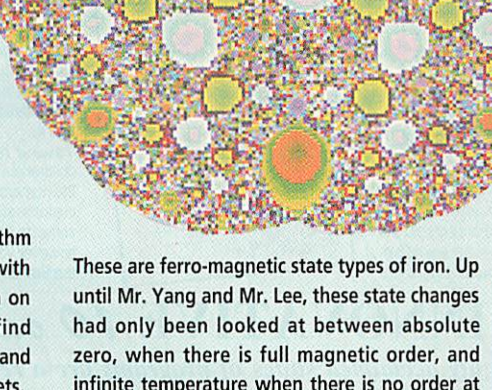
Regular readers will remember Philip's spherical fractals from last month. This program gives you four different types of fractal in one program, and of two of these types there are an infinite number, so there is quite a lot of exploration for those who are bored with the Mandelbrot set.

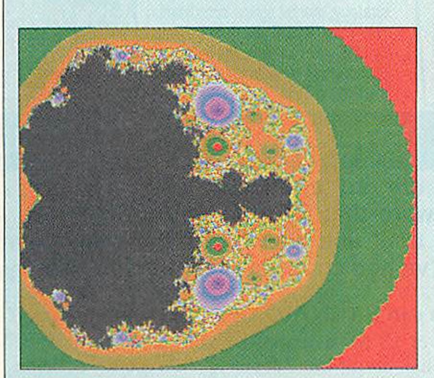
Philip explains. 'On running the program, you are asked if you want model I or II. Model II is similar to model I but uses a more complicated formula; this leads to longer processing time, but more interesting results.

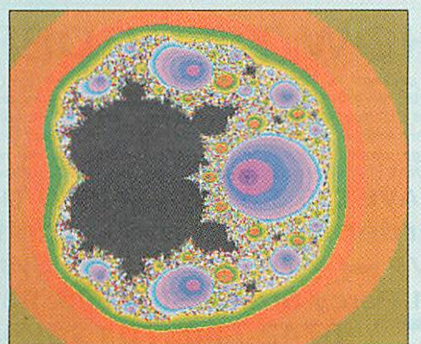
'You are then asked whether you would like to generate a q-plane or x-plane picture. A q-plane picture gives Julia-set-like results, and the x-plane Mandelbrot set-like results, but really the only similarity between these better-known sets and the Yang/Lee sets is the principle.

'If you entered X for x-plane picture, the picture will have begun to form. However, you will need to enter two coordinates if you are viewing the q-plane pictures (just like with a normal Julia set). Here are some good coordinates to start with (some from 'The Beauty of Fractals', p.134, others of my own discovery).

Model I: (-0.1,0) (1.2,0) (2,0) (3,0)
Model II: (2,0) (-1,1)







'This program uses the same fast algorithm as my previous Riemann sphere program, with similar speed increases. It is fun to zoom in on the X-plane pictures – in Model I, you find embedded little distorted Mandelbrot sets, and in Model II you find little distorted Model I sets.

'This explanation is kind of extracted, mutilated and chopped down from the book "The Beauty of Fractals". If you are worried, or you find a flaw in my explanation, see pages 129-146 of this book.

'The Yang/Lee sets were investigated in the early 1950s by these two blokes C N Yang and T D Lee in relation to state changes. They were trying to find out more about some obscure state changes, rather than obvious ones like solid to liquid or liquid to gas.

'As the temperature of some magnetic substances is increased, they become less magnetic retaining suddenly, sharply, just as ice melts suddenly and doesn't go treacly before turning to water.

'You may have heard of alpha and beta iron. These are ferro-magnetic state types of iron. Up until Mr. Yang and Mr. Lee, these state changes had only been looked at between absolute zero, when there is full magnetic order, and infinite temperature when there is no order at all.

'These two men thought they would extend the range to negative temperatures, and then imaginary and complex temperatures to gain a better understanding of the systems involved.

'Anyway, formulae can be designed which explain how the separate atoms communicate their magnetic field between one another. Two particular cases, Model I and Model II are very close approximations of what actually happens.

'When these formulae are iterated, just like the x=x+c for the Mandelbrot and Julia sets, patterns are generated which look good, and help a lot in the understanding of magnetic phase transitions. They would probably make nice T-shirts as well.

Author: Philip Hudson

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Maths (Algebra)

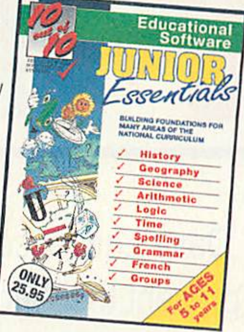
For children 6 to 16 years



Covering many areas from Attainment Target 3 of the National Curriculum, the 10 out of 10 Maths (Algebra) package is packed with subjects, levels and activities to challenge all children from Key Stage 1 right up to Key Stage 4.
Following sequences, interpreting graphs, solving equations and numerous other algebraic skills have never before been so much fun. This is the fun way to practise and become fast and proficient with the manipulations needed for high examination marks.

Junior Essentials¤

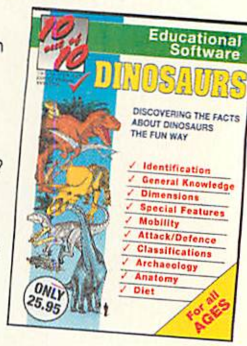
For children 5 to 11 years



A truly flexible package covering many topics essential for building a good educational foundation. The areas covered have been carefully chosen by a team of experts and come from several subjects and levels of the National Curriculum.
The child's progress in these areas is constantly monitored and recorded and parents or teachers can easily discover where a child needs help.
As with all the 10 out of 10 series, further motivation to play the games and learn more is added in the form of High Score Tables.

Dinosaurs

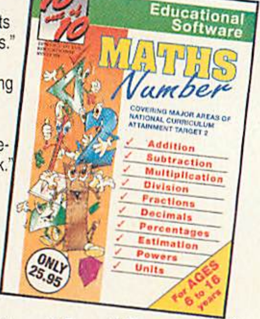
For all ages



This package is the fun way to learn the truth about dinosaurs. The six games all have superb digitised graphics to make a whole area of history – dinosaurs – come alive.
If you came face to face with a tyrannosaurus would you run away? Or are you safe because it's a vegetarian and wouldn't eat you? This, together with 100s of other interesting facts, can be discovered from this enthralling package.
The six games – all with single and multi-player options – are educational fun for everyone.

Maths (Number)

For children 6 to 16 years



"Well thought out to offer real benefits to children studying in British schools." – PC Plus (July '93)

"Educationally worthwhile and exciting to play – a rare combination." – Archimedes World (December '92).

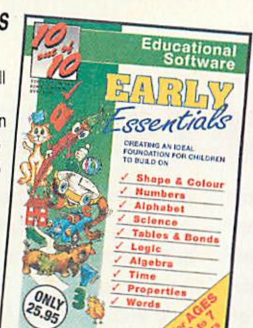
"Unique in home-based programs because of the National Curriculum link." – The Micro User (September '92)

"Excellent for reinforcing specific mathematics knowledge." – Junior Education (July '93)

"The 10 out of 10 Series lives up to its name." – PC Home (August '93)

Early Essentials

For children under 7 years



"Outstanding. All of the activities are not only very enjoyable but they're well thought through. It's one of the best multi-purpose infant packages I've seen in a long while. If you have young kids get it for the home. If you're a teacher, hammer on the headteacher's door and beg for money to buy a copy." – Archimedes World (July '93)

"At just £25.95 you'll be hard pressed to find anything which even comes close to Early Essentials." – Micro Computer Mart (Sept. '93)

English

For children 6 to 16 years



"Everything being done is relevant to the player's education. An invaluable curriculum experience, plenty of fun, lots of variety." – PC Home (November '93)

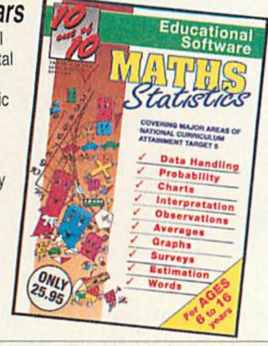
"Guaranteed to sustain the attention of even reluctant learners." – RISC User (January/February '93)

"Most importantly, as the games are fun, children can't help but learn." – Acorn Computing (March '93)

"Allows progression from Junior school age right up to GCSE level." – Amiga User International (Sept. '93)

Maths (Statistics)¤

For children 6 to 16 years



Attainment Target 5 of the National Curriculum is Data Handling – a vital area of Mathematics. 10 out of 10 Maths (Statistics) covers 36 specific topics from that subject.
In this package, recording animal sightings in an animated pond or rolling dice are just two of the many challenges that children will relish as they learn about statistics. And can graph drawing be a game? It becomes arcade action as bricks and bombs are dropped onto the charts. This is a really enjoyable way to learn about statistics.

French¤

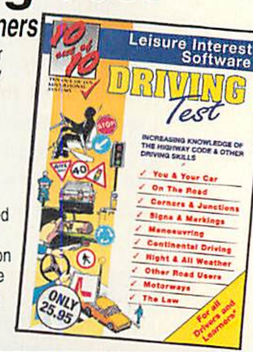
For children 6 to 16 years



This suite of six educational games will give fun and motivation to all children learning French. The package is designed with the Modern Languages National Curriculum firmly in mind and contains many challenges to reinforce facts stated in Attainment Targets 3 and 4.
10 out of 10 French is essential for children on Key stages 3 and 4, but the numerous parent and teacher customisation options make the software suitable for all children – however young – who are learning the French language.

Driving Test¤

For all drivers and learners



Whether you're a novice learner or an advanced expert, there's plenty you can learn from this package. There are thousands of built-in questions and you can choose whether you want to answer them directly or add to the fun by trying them within games.
The six games have been designed to be fun for all adults and include strategy, mental agility, coordination and more. And, if you think you are up to it, you can *"take the test"* – a challenge covering many areas of the Driving Test.

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3D TREES



This latest in a long-line of *INFO nature-inspired programs is probably the most sophisticated tree simulator we've carried to date. Tim Jones' listing generates a truly 3D tree by building up the trunk and branches from cylinders formed by many polygons and adding leaves in the same way.

The plotting process takes place in two stages. Firstly, the grass, tree and leaves are created as 3D polygons whose co-ordinates are stored in a table. The polygons are plotted as outlines during this process so you can watch the tree grow. Then OS_HeapSort is used to sort the polygons depth-wise and then the second stage begins.

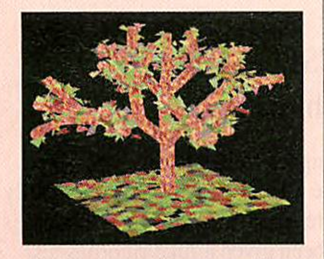
Now, starting with the rearmost surfaces and moving forward, the polygons are filled in with the appropriate colour to generate a really 3D tree.

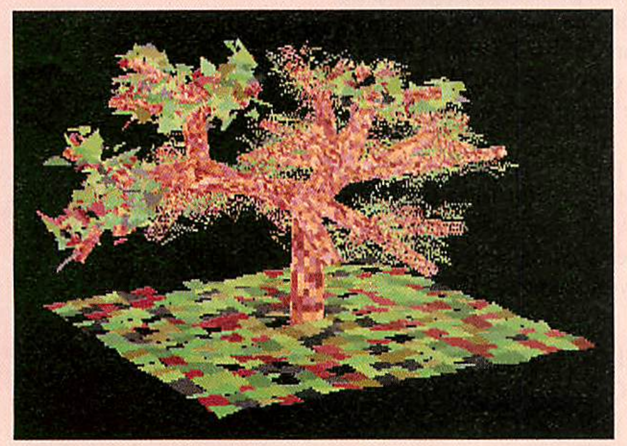
Several of the variables used can be altered to provide different end results. For some (like the number of times a branch will split) you will need to allocate more memory to Basic. Briefly, this is what the main variables do:

t_len – length of trunk
g_on – grass on/off flag
b_sides – sides on each branch
b_sects – sections along each branch
b_sprout – number of times branch will split
b_splits – number of branchs that will emanate from each split
b_shrink – ratio of size of 'parent' branch to size of 'child' branch
b_splitmax – maximum angle at which a branch will sprout
b_splitmin – minimum angle between new branches
l_on – leaves on/off flag
l_num – number of leaves on a branch
l_size – leaf size
l_gens – number of generations that have leaves
zoom – viewing distance from tree
outline – 'outline each rectangle' flag (TRUE/FALSE)

As far as practical implications go, it will probably be a while before such trees will be whizzing past the cockpit of your Arc flight-simulator. The program requires 864K using the default settings and takes three to four minutes to make a tree on an Arm3 machine. Nevertheless, the maths is sound and the end result worthwhile. Would any reader like to chance their arm code and write us a zippier version?

Author: Tim Jones





MESSAGE TRANS

One of the main features of Risc OS 3 is the ability to make applications easily customised for foreign languages. Instead of prompts and error messages 'burnt into' the code, tokens are used (normally English). These are then looked up in a file and the appropriate message found.

For example, the token 'InsDisc' might equate to the string 'Please insert disc'. If it was required to translate the program into Swahili, it would only be necessary to replace the file of messages – the program itself could remain the same.

This saves a lot of development and upkeep time because only one version of code needs to be maintained. Obviously the token names can be in any language – they could just be random numbers – and as long as they are understood by the developers, the user of the program never sees them.

Thus the Swahili version of the program above will still contain the token name 'InsDisc' but the Swahilian users will be prompted in Swahili.

Enough background: the Risc OS 3 *MessageTrans* module provides a number of SWI calls which make this procedure very easy to implement. One of our youngest contributors, 13-year-old Theo Markettos, suggested we enlighten you on this very subject, so here goes.

First of all you need to create your message file - have a look at *Messages* on the disc for an example. Lines beginning with a # are comments, otherwise they contain a token name followed by a colon followed by the message text.

You can have aliases for token names, in which case they should either follow the token name separated by a '/' or be entered on the line above (but without the colon). The wildcard '?' will match any character. Message texts can contain parameter substitutions – see below.

To access this file you must first use MessageTrans_OpenFile to open the file. It is possible for message files to be used *in situ* in Rom, so they don't need to be loaded. A quick call to MessageTrans_FileInfo will tell you. OpenFile fills in a 16 byte (4 word) block of memory to be used a file descriptor (or handle) for refering to this file.

To translate a token you use MessageTrans_Lookup. This is passed a file handle, a token name and a destination buffer (and size) and optionally up to four parameters that will be substituted into the string for %0 %1 %2 and %3.

Assuming the token can be found and the buffer is large enough, it will be filled with the message text (with substitutions). There is a similar call MessageTrans_GSLookup which automatically passes the string through GSTrans (to parse system variables and so on).

Once you have looked-up all your messages a call to MessageTrans_CloseFile is needed to tidy everything up. There is a demo program *Demo* on the cover disc which illustrates all these calls.

In this program you'll find two useful functions FNmessage and FNmessageGS which call the relevant Lookup calls and also effectively allow variable numbers of parameters to be passed to them (one thing C has over Basic!) – the % substitution strings are appended to the token name and separated by colons.

FNsplit detects these and cuts the string up into token name (in token$) and the parameters in the array s$().

MessageTrans also provides calls for building menus and generating errors. We will cover these functions another month.

Author: dL, suggestion by Theo Markettos

The Ecole range of computer trolleys
for the Acorn Archimedes



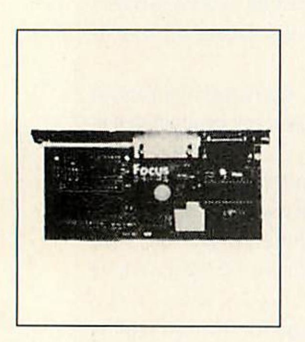
The Ecole range of computer trolleys has been designed to meet educational requirements for greater efficiency and security. Moving computer equipment is expensive and time consuming, added to which there is always the chance of accidental damage to equipment. The Ecole computer trolley helps to overcome these problems. Computer systems can be set up once, wheeled to the required classroom and be plugged in ready to use.
There are two basic designs: MCT04 for expandable systems such as Acorn A3000 series and MCT05 for three-box construction computers such as the Acorn A540 or A5000. Both can be fitted with a four way power block (P). Both trolleys are designed to pass through a standard width door and incorporate a strong metal frame, plastic laminated work surface, and 75mm wheels fitted with rubber tyres to give a quiet shock-absorbing ride. The front two wheels have brakes fitted for extra stability when the trolley is stationary. The trolley's metal frame is finished in hard wearing stove enamelled paint in a choice of blue or brown.

Options
Desk heights 500, 600, and 700 mm
Colours Blue with cream work top
Brown with cream work top
Please state choices when ordering,
e.g. MCT05 (500 Blue)

Code	Price
MCT04	£89.00
MCT04P	£114.00
MCT05	£78·95
MCT05P	£104.00
Printer Paper Shelf	£18.95
Delivery	£15·00

Warranty 24 Months
Prices exclude Value Added Tax

Ecole User and User Analogue ports
for the Acorn A3000, A3010, A3020 and A4000

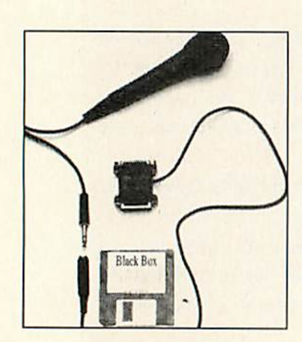


The Ecole User port is compatible with hardware and software developed for the BBC computer through to the Acorn range of Risc computers. The firmware is provided in ROM on the podule and supports OS Byte calls &96 and &97. The User/Analogue Port firmware supports the above calls plus ADVAL key words.

User Port	£35·00
User Analogue Port	£39·95
Delivery	£2.85

Warranty 12 Months
Price excludes Value Added Tax

Black Box sound sampler and accessories

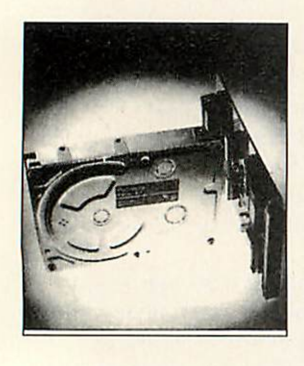


Black Box is the low cost sound sampler for the Archimedes. It is an ideal way of capturing sounds which can be added to your own programs or multimedia applications. It consists of a robust hand-held microphone with integral on/off switch, and a box containing the electronics. Simply plug Black Box into the printer port of any Archimedes computer and you are ready to record.
Black Box has an adaptor provided which allows a variety of other sound sources to be plugged in, and music or speech recorded direct. Have fun creating sound samples which can be included into multimedia applications such as talking stories or books, special effects and sound libraries.
(No batteries required)

Black Box with hand microphone	£29·95
Black Box with headphones & boom microphone	£39.95
Black Box with deluxe headphones & boom microphone	£55.95
Delivery	£2·85
Black Box direct recording level adjuster (All models)	£12·95
(this is normally only required when recording direct from powerful devices)	
*Delivery	£1·00
6 Metre extension cable	£4.95
*Delivery	£0.50

(*only applies if brought separately)
Warranty 12 Months
Prices exclude Value Added Tax

The Ecole range of SCSI hard discs
for the Acorn Archimedes



The Ecole range of hard disc upgrades are designed to be plug-in- and-go. Both the Internal and External systems include a 16 bit* SCSI controller (fully Acorn SWI compatible) which also incorporate Acorn's CDFS. Each system is tested at every stage of manufacture, and has been given a final rigorous test to ensure that it meets our zero defect standards. The External hard disc unit is housed in a metal case together with a switch mode power supply, low noise fan and industry standard 50 way SCSI in and out connectors. The attractive case is stove-enamelled, colour matched to the Acorn computer and comes complete with a round shielded SCSI cable.
When ordering please state the model number (i.e. A5000). This will ensure that you receive the correct upgrade. Please note * A3000 has optional 8 bit internal or 16 bit external SCSI card. A3010, A3020 and A4000 have 8 bit internal SCSI cards. The warranty period quoted above applies to the hard disc mechanism only. All other parts are one year warranty. Units are available as additional devices.

INTERNAL SCSI HARD DISC DRIVES

Size	Drive Man	Warranty	Price
120 Mb	Quantum	2 Years	£299·00
170 Mb	Quantum	2 Years	£345·00
240 Mb	Quantum	2 Years	£408·00
525 Mb	Quantum	2 Years	£799·00
584 Mb	Micropolis	5 Years	£842·00
1000 Mb	Micropolis	5 Years	£1092·00

EXTERNAL SCSI HARD DISC DRIVES

Size	Drive Man	Warranty	Price
120 Mb	Quantum	2 Years	£389·00
170 Mb	Quantum	2 Years	£439·00
240 Mb	Quantum	2 Years	£503·00
525 Mb	Quantum	2 Years	£894·00
584 Mb	Micropolis	5 Years	£937·00
1000 Mb	Micropolis	5 Years	£1181·00
1800 Mb	Micropolis	5 Years	£1620·00
2000 Mb	Micropolis	5 Years	£1997·00
Delivery			£10.00

Prices exclude Value Added Tax

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PACK MY BOX

There are many applications for which text compression is desirable – an adventure game or database to name but two. The common problem with usually efficient methods (such as LZW, as used by the *Squash* module) is they are often not generally good for short strings because of the overheads of the technique.

Robert's short program assembles a module which provides SWI calls which are good at packing short strings (if you can put up with its restriction!). *Packer* works by reducing the number of bits needed to store a string.

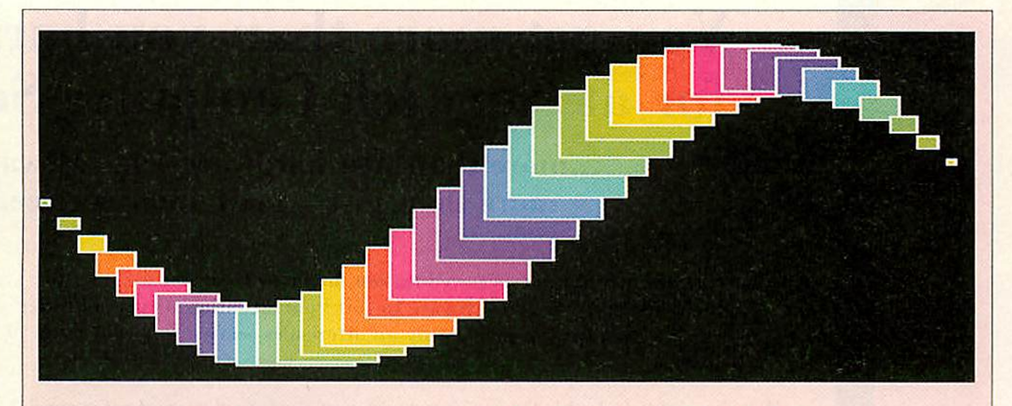
As there are only 26 letters of the alphabet, you could get away with using five bits instead of eight bits per character. In fact, you could have an extra six characters, like space and a few punctuation marks as well.

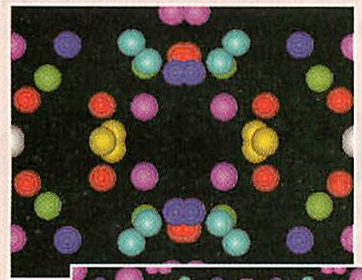
If you needed lower case you could either write a cunning routine to generate upper and lower case automatically or resort to six bits.

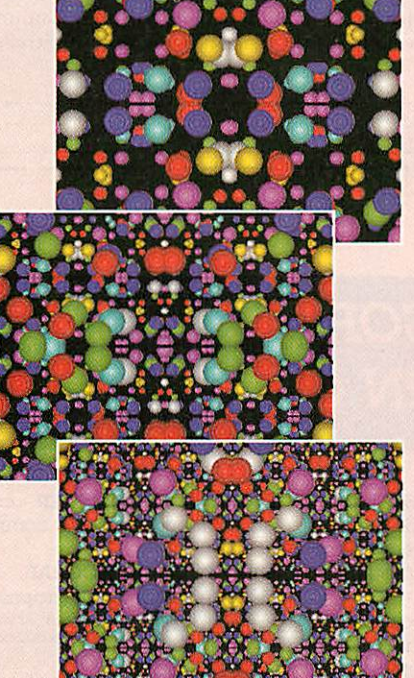
The *Packer* SWIs are demonstrated in the program *Example* which uses A-Z and space. Note that the list of valid characters are passed to each SWI, so you could therefore use different valid strings is different places, say to compress numbers (0-9,- and .) to only four bits.

Example asks for a string and compresses it with *Packer* and with *Squash* and prints the number of bytes used by each method. Note that in the long run, *Squash* is a much better general purpose compressor.

Author: Robert Anderson







VIBE TRIO

Three more now from our dynamic Dane Jan Vibe's bottomless bag of Basic bibelots (sorry Jan, but that's the best the thesaurus could provide).

Sinus is a simple but effective animation. The SIN function provides the basic of the curve of squares whose sizes also vary sinusoidally. Jan uses his favourite trick of setting the palette (using SIN yet again) to a smooth progression through the spectrum. In this way, the colours seem to ripple along the length of the snake.

SymBalls is one of those 'flying into the screen forever' demos. PROCpearl is used to plot a set of randomly coloured pearls around the screen. Then the screen is grabbed as a sprite and shrunk to a quarter of its original area. The plot sprite scaled calls are used to achieve this smoothly.

Now the sprite is re-grabbed' from the screen in its shrunken state and shuffled into one corner. Further SpriteOp calls are used to reflect the original sprite around to fill the screen with a symmetrical pattern. And now the whole process begins again, with new pearls being added as before.

Finally, *Ballet* is an impressive Basic version of the balletic spheres that dance around on many a demo. A line of spheres are plotted according to a random trigonometrical function. Then a new function is chosen and the balls are animated smoothly to their new respective positions. Originally the movement was linear but we added a little bit of code (using SIN yet again!) so that the balls speed up and slow down to enhance the balletic effects.

Author: Jan Vibe

ALIEN INVADERS ATE MY MOUSE



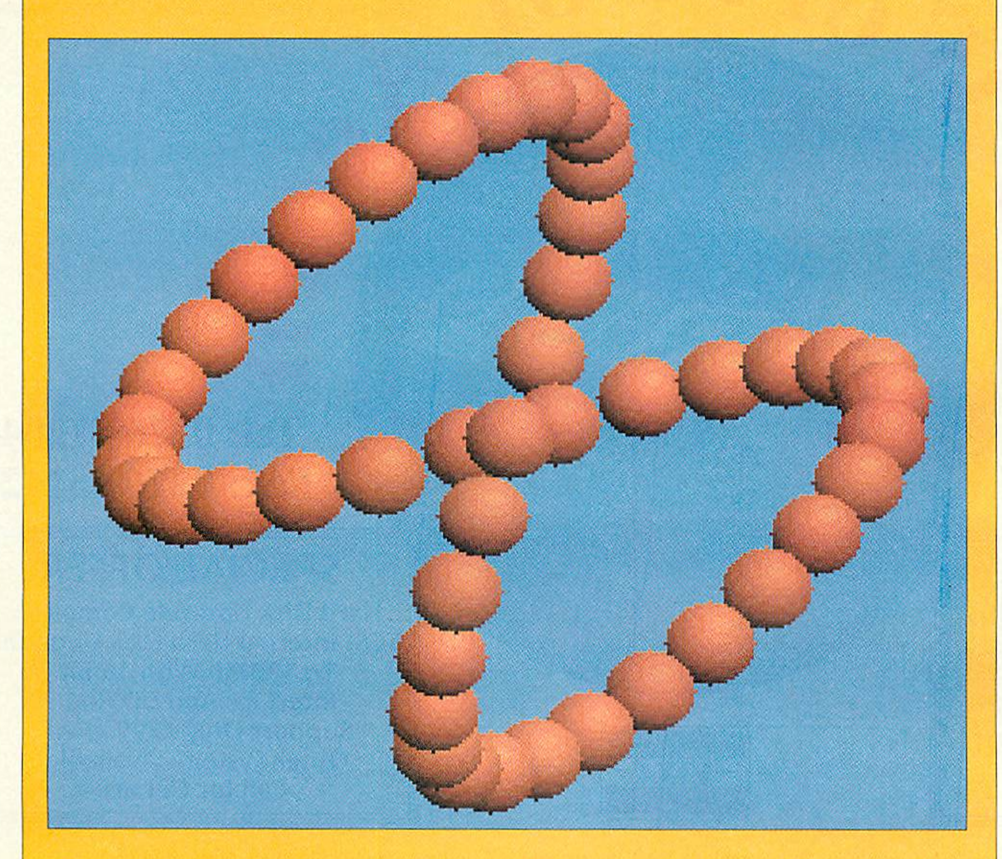
GASP at the animated desktop background! COWER as the invaders move across the screen! DARE you click on them and read their messages? OK, perhaps that's a little over the top for this desktop quicky, but it is rather fun.

It's not quite in the same league as our own desktop cockroaches from the August issue which patched into the pinboard module, but it's still worth the effort. Pressing Menu on the background will allow you to set the number of invaders. The maximum setting will vary according to processor speed and (for Arm3) the cache setting. (This is worked out by running a tight machine code loop for one-fiftieth of a second. The result will vary a bit depending on interrupts. If you can come up with a better method, feel free to replace mine.)

There can be only one message window active at any time, and it remains on screen for four seconds. If it is clicked on, it will disappear. The Quit option is, as you'd expect, in the main menu. The Messages file was actually supplied by your friend and ours Jan Vibe – he'd sent in a very simple program that displayed these 'fortunes' in coloured boxes on a Mode 15 screen; probably not a program we would have published as such, but when we saw Darren's program we realised it would be an excellent vehicle for Jan's text.

Author: Darren Salt

WALKTHROUGH – Ballet, by Jan Vibe



We have arranged Jan's program so that it uses procedures extensively. In this way it should be clear to even novice programmers which bits do what, and describe the demo here, procedure by procedure.

PROCinit_mode_and_palette
Mode 9 is used for the demo and Mode 137 (shadow Mode 9) is first selected to ensure that there is enough screen memory for two banks and that both are cleared. The palette is then set to a range of orange shades (colours 1 to 15) with colour 0 (used for the background) and the border being set to a blue.

PROCinit_vars
This initialises all the main variables. Important ones are:
balls% – the number of balls. 45 is fine for Arm3 users; try 15 (or 90!) to suit the speed of your machine
stages% – the number of frames taken for the balls to move to their new position (try smaller or larger values)
from_x%(), from_y%() – the x and y co-ordinates of each ball before a move begins
to_x%(),to_y%() – the destination x and y co-ordinates
scr% – the current screen back
os_byte%, os_spriteop% – used instead of "OS_Byte" etc. to speed execution
m1(),m2() – multiplication factors, used to speed up and slow down the balls as they move from from_x%(), from_y%() to to_x%(), to_y%().

PROCinit_sprite_area
A 1K sprite area is set up to contain the ball sprite.

PROCmake_ball
A ball is plotted on the screen and then grabbed as sprite *kugle* with SpriteOp &10. The ball plotting routine takes the form of an x and y loop, the colour of the ball at each point being determined by its distance from the ball's highlight spot. A mask is created and points are set in the mask according to the shape of the ball on the screen with sprite op &2C.

PROCchoose_random_figure
This is called just before the balls begin their next move. The array a%() is filled with random values and these are used as coefficients for the equation determining the next figure.

PROCcalc_coords
This procedure takes two arrays as parameters and returns them, filled with the x and y co-ordinates for each ball. The values in a%() are used with SIN and COS to work out each x and y pair.

PROCanimate
This actually does the work. For each stage in the animation, the screen banks are swapped and the balls plotted on the hidden bank using sprite op &22. When complete the new co-ordinates to_x%(), to_y%() become the next lot of old co-ordinates from_x%(), from_y%().

PROCswap_screens
This standard routine waits for a vertical sync and then swaps between the two screen banks, clearing the hidden one ready for the new picture.

ACCENT PLUS

Back in August 1992 we carried the source for a module called *Accent* which allowed foreign accented letters to be typed by holding down ALT and pressing pairs of keys, for example, e and " to give ë.

Richard Hallas has found the module useful for entering other symbols and has provided new lines of data for them. The following table shows the symbols supported and the keys required. Note that 'TN' produces the trademark symbol – ALT-M is intercepted by Risc OS to produce μ and so 'TM' cannot be used.

Author: Original by Jan Maurits Faber, alternative data by Richard Hallas

New Accent codes

Left Alt +	Alone	Shift
Q W	'	"
Q E	'	"
F I fi	fi	
F Lfl	fl	
L E	œ	Œ
T N	™	™
. ,	•	•
£ =	†	•

DO NOT ADJUST YOUR SET

Inspired (we guess) by Andy Jeffries' eight-bit TV interference simulator in the September issue, Colin McEwan has sent us a 32-bit version of the same 'late-night BBC broadcast', but just to make things a little bit more interesting, has done so using one line of Basic only (and a useful OS_Word call).

Not much we can say about this program – it fills all the available screen memory with random numbers and then randomly chooses an address to assign to the start of screen. You can have hi-res fuzz by changing to Mode 18 or Mode 25 and colour fuzz in Mode 15.

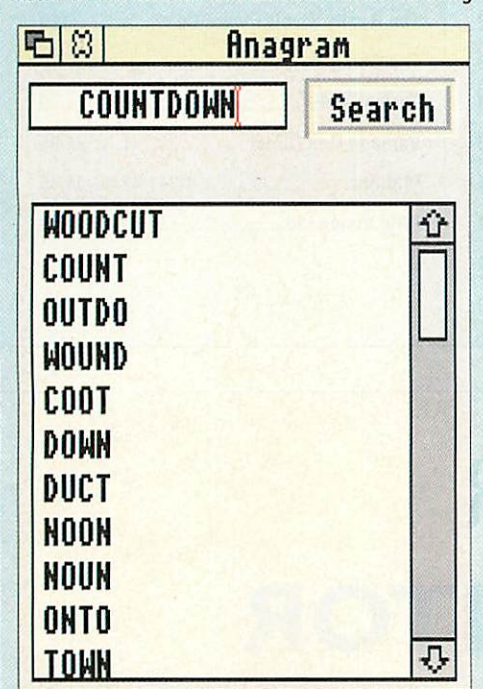
Author: Colin McEwan

A SPELL AT C

Last month Paul Burns shed some light on how the *Impression* spelling module can be used outside *Impression* itself. This month we have knocked up a CountDown-compatible anagram-finder in preparation for the new series in January on Channel 4.

Countdown-inspired programs have featured before in *INFO, but we thought it was about time to bring them into the desktop world. Anagram is perhaps not as well named as it could be since it finds both anagrams and 'subgrams' (words that can be formed from a set of letters but not using all of them).

The application is simple to use. Double-click to install on the icon bar and click on the icon to bring up a simple window. There is a box to enter your set of letters and the search begins when you press RETURN or click on the Search icon.



Within the anagram window is a scrollable pane that expands as words are found. They are listed in decreasing order of length (most useful for CountDown) and alphabetically within groups of the same length. Any true anagrams are highlighted in red and will of course appear at the top of the list. You will need to install the ImpressionSpell module beforehand (by loading Impression for *example*) – a warning will be given if the module is not found and you will only be able to open the *Anagram* window when the module has been loaded.

or speed and simplicity, *Anagram* has been written in C, but the calls used are available to Basic programmers too. One call not mentioned last month makes the operation of Anagram much faster: Spell_GetNextWord. Having found word n with:

```
SYS "Spell_GetWord",n TO ,addr
```

the address of the next word can be found simply with:

```
SYS "Spell_GetNextWord" TO ,addr
```

This call makes searching much quicker (since the module doesn't have to search through reams of other words) and is the preferred call for any operations where you wish to search methodically through the dictionary. For further speed improvements, a 'first two letters' table is created when you first open the Anagram window (using Spell_FindWord as described last month). In this way, words beginning CH say, will be skipped if either C or H is absent from the entered string.

Further optimisation is no doubt possible, but the application manages its task in well under the allotted 30 seconds so no matter.

Author: DA, based on an idea by Paul Burns

SOUNDS DIFFERENT

This program has ben sitting around in the *INFO vaults for far too long, and we apologise to Chris for our tardiness in publishing it. We had been meaning to do the necessaries on it to change it into a *Bio* module but never got round to it, so we finally gave up on the idea and decided to print the program 'as is'.

As you may have noticed there are many subtly different types of music files: *Tracker*, *SoundTracker*, *ProTracker* to name but a few. They are all essentially the same, but the different types do in fact have different facilities, and a tune can be considerably spiced up'by converting it to one of the other types.

STconvert takes *Tracker* files and can produce *SoundTracker*, *ProTracker* or *TeQMusic* files.

Using the program is simple; just type in the source and destination files and wait a few moments for the conversion, then try out the new file (on something like *ProTracker*). We think you'll be quite impressed at the difference.

Author: Chris Wilson

*QUIT

Another bundle of submissions over and done with, but there'll be more of the same and indeed, different, next month. If you would like your work to sparkle alongside the glittering programming masterpieces here then you need only put them on a disc and post them to: *Info, *Acorn User*, Europress Enterprise Ltd, Europa House, Adlington Park, Macclesfield SK10 4NP.

lease write your name, address and program title on the disc and include a text file containing the same details. And please include a stamped, addressed envelope to ensure your disc's return.

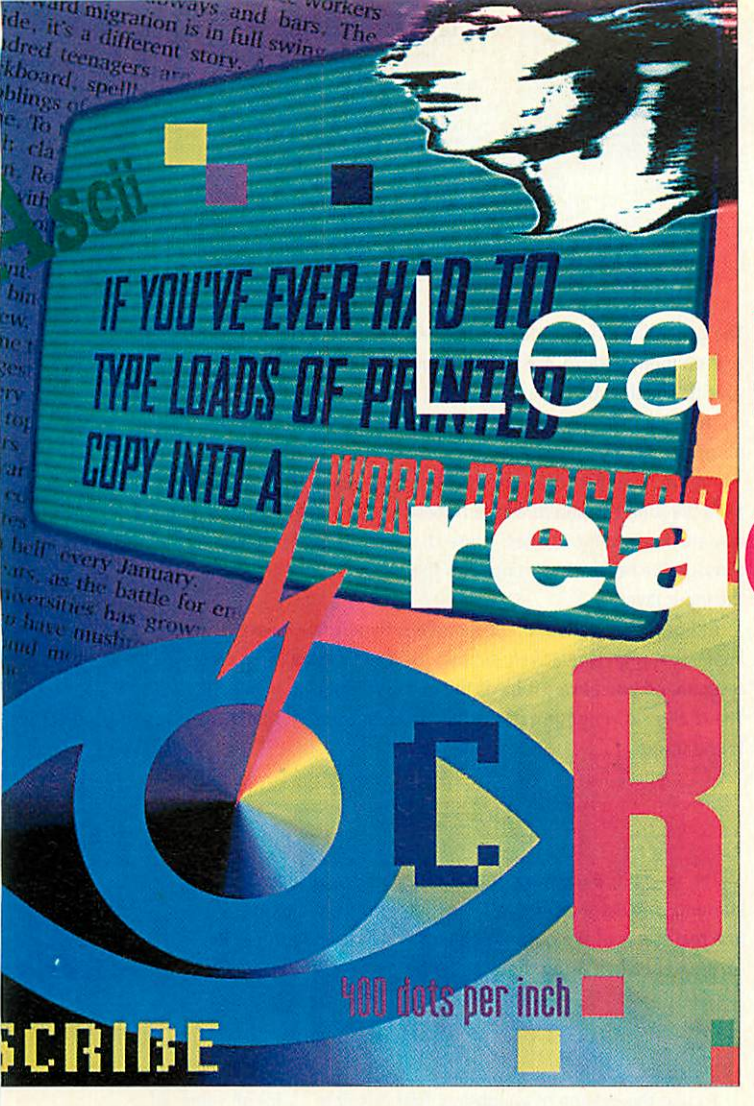
Also, include instructions, preferably as a simple text file, for each program submitted. At the simplest you should explain what the program does and how to use it. Explanation of how your program works is also useful if it does something unusual, complicated or just plain clever! Good *Draw* files and other diagrams will also increase your program's chances of making it into these hallowed pages.

As well as programs we welcome hints, tips, suggestions, ideas for features, questions, answers, applications, requests, short-cuts, patches, bugs, features and comments. This last category includes what you think of the column and anything you'd like to see that you don't already.

Now we have a cover disc the range of programs we can include has been greatly extended. Therefore programs in C etc, or programs that were too long to fit in the magazine can now be catered for. Do remember that many readers will want to look through listings though, to adapt them or see how they work. For this reason, presentation and consistency are important, so please note the following in particular:

- Basic variable names should always be lower case and 'meaningful' wherever possible – the same goes for procedures and functions
- Avoid GOTOs or any line references
- Sprites should be stored in user-defined sprite areas and not the shared sprite pool – do not use *SGET please!
- Make your program runnable from the desktop if you possibly can
- We have received a number of discs harbouring viruses and although we 'disinfect' everything before it comes anywhere near a *INFO machine, we would appreciate you being extra vigilant before sending stuff in. We will warn the senders of any infected discs so they can fumigate the rest of their software.

Advertisers index



Learning to read

Scribe, the Acorn User OCR package, recognises characters using artificial intelligence techniques. In this second article, Robin Barnes describes the concept of a neural network.

Scribe, the complete OCR package on last month's cover disc, began as an experiment into neural networks, an increasingly important branch of artificial intelligence research.

For many years work in artificial intelligence concentrated on developing systematic rules for solving problems. Computer languages, like Prolog, were developed to help implement these rules and they were rigorously tested on a variety of 'real-life' problems.

However the rules were often many times more complicated than the problems they were designed to solve, and using this approach, an artificial brain would require a computer more powerful than any that could possibly be built today, and programs far more complicated than any previously written.

The neuron

Clearly a radical, new approach was needed, and researchers looked for inspiration in neuro-biology. Instead of trying to imitate the conscious responses of the human mind to a problem, researchers tried to model the physical processes that actually take place within the brain.

The building blocks of the brain are nerve cells, or neurons. Each is connected to dozens of other neurons and they in turn are connected to dozens more, forming a vast inter-connected network. The connections, known as synapses, pass chemical messages between one cell and the next.

If the strength of the signal received by a neuron is above a certain threshold, it 'fires' and an electrical impulse passes through it. This triggers the release of the neuron's own chemical messengers, stimulating other neurons connected to it.

The strength of the signal a neuron receives depends on the number of connecting cells that have fired and the strength of the link between them and the neuron.

The first mathematical model of the neuron was proposed in 1943 by Warren McCulloch and Walter Pitts. They suggested the 'binary neural node', which can have two states, either on (represented by one) or off (represented by zero).

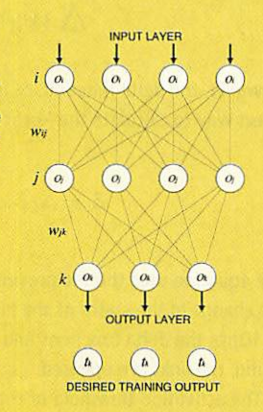
The signal passed from one neuron to the next is found by multiplying the state of the neuron by the strength, or weighting, of the connecting link between them. The weighting is represented by a real number, and the higher the number, the stronger the link.

The state of a neuron is found by adding all the input signals together and comparing them with a firing threshold. If the sum of the inputs is above this threshold, the neuron is switched on.

On its own the neuron cannot do much; it is only when several are linked together that

Evaluating networks

The simple network shown above consists of an input layer of four nodes, i, a single hidden layer of four nodes, j, and an output layer of three nodes, k. The state of a node, $o_{i,j,k}$, is a real number between zero (fully off), and one (fully on). The mathematics of this simple example can be applied to much larger networks.



A pattern is presented to the network by setting the states of the input layer nodes. The state of each layer of the network is found from the one above by a feed-forward process.The input to a single node in the hidden layer, n_j, is equal to the sum of the products of the states of all the input layer nodes and the weighting of the links between the input layer and the given node.

$$n_j = \sum_i o_i \, w_{ij}$$

The final state of the hidden node, o_j, is found from the input by applying a threshold and activation function, $f()$.

$$o_j = f(n_j)$$

This summing process is repeated for all the nodes in the hidden layer. Once all the states have been found, they can be can be used to find the states of the output layer nodes.

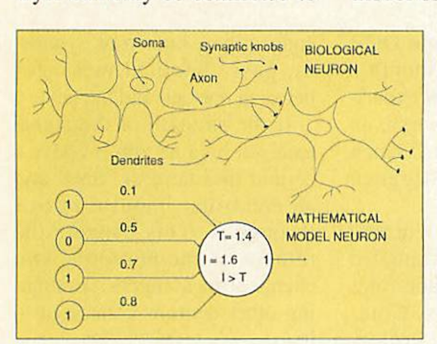
they are of any practical use in solving problems, for example groups of neurons are good at 'remembering' patterns.

When a certain pattern of neurons is switched on, other neurons react by switching to a specific 'remembered' state. The way in which groups of neurons store patterns is dependant on the way networks of nodes are connected.

Neural networks

There are several methods of connecting neural networks, the classic form being the semi-linear, feed-forward, or associative net, which groups neurons into different layers.

Each neuron, or node, in a layer can only be connected to the nodes in the layers immediately above or below it. Signals pass from the first, or top layer, to the last, or bottom layer.



This simplifies the calculations involved in finding the state of each neural node and also provides discrete input and output stages. Information is presented to the network by setting the state of neurons in the top layer, and the output is read by examining the resultant state of neurons in the bottom layer.

Network training

The network is described as associative, as the net learns to associate an output state with a given input state, even when the input is distorted. Usually networks contain one or more extra, hidden layers between the input and output, which improve the performance of the network; this is because the more nodes the network contains, the more patterns it can recognise.

The major problem associated with neural networks is how to train them to recognise different patterns. The most common method is to set the input of the network to one of the desired patterns and evaluate the output state. The network is then trained by trying to adjust the thresholds and weightings of the links to produce the desired output. The process is repeated until the network has learnt all the patterns.

Early experiments with feed-forward networks produced dissapointing results, since it was found that they could only store and recognise a small number of patterns before being overloaded.

To try to improve the performance of networks various modifications to the basic model of the neuron were suggested. The most successful of these was incorporated into a training algorithm called the Generalised Delta Rule, developed in 1986 by Rumelhart, Hinton and Williams.

Instead of a node being either on or off, it has many intermediate, fuzzy states. An activation function is used to produce a state related to the difference between the input signal and the firing threshold. The function used is the sigma curve, which gives a state of 0.5 for nodes with inputs close to the threshold, rising rapidly with bigger input signals.

By allowing all neurons to contribute to the recognition of a pattern, even those with little activation, the performance of the net is greatly improved.

The Generalised Delta Rule network is used by *Scribe*. It has the advantage of being relatively easy to compute, easy to train, and capable of retaining a reasonable number of patterns.

Next month I'll explain how the networks are implemented in *Scribe* and how letters are actually extracted from a scanned sprite.

References

● *An Introduction to Neural Computing* by Igor Aleksander & Helen Morton.
● *Adaptive Pattern Recognition and Neural Networks* by Yoh-Han Pao.

Training networks

The generalized delta rule is a supervised learning algorithm which, for a given input pattern, trains the output nodes of the network to a specific, ideal state, t_k.

The input pattern is presented to the network and the state of the output nodes evaluated.

The training algorithm adjusts both the weighting of the links and the activation thresholds of the nodes to reduce the error between the real and ideal output states. These changes are back-propagated through the network starting with the output layer and working up to the input layer.

Although the derivation of the rule is fiendishly complex, the implementation is relatively simple; for the full derivation, I'd recommend you have a look at the books referred to below.
The change in weighting of the hidden to output layer links, Dw_{jk}, is found using:

$$\Delta w_{jk} = \eta \delta_k o_j$$

The term h is a constant of proportionality that controls the rate of learning. The delta term d_k is a function of the error between the ideal and real states of the output nodes. It is a complicated relation, but fortunately when using the sigma activation function it simplifies to:

$$\delta_k = (t_k - o_k) o_k (1 - o_k)$$

To find the change of weighting, first calculate d_k, for all values of k, then evaluate Dw_{jk}, for all values of j and k using the appropriate terms of d_k and o_j. A similar calculation can be applied to the input and hidden layer links, Dw_{ij}.

$$\Delta w_{ij} = \eta \delta_j o_i$$

However, the delta function, d_j, is more complicated as there is no direct way to calculate the 'error' of the hidden layer state.

$$\delta_j = o_j (1 - o_j) \sum_k \delta_k w_{jk}$$

The equation uses the the previously calculated d_k values to calculate the change in the states of the hidden layer nodes.

1Once the delta functions and the change in weighting have been found, the links are updated.

The activation threshold of the nodes is adjusted by assuming that all the nodes have unity state and that the thresholds correspond to the weighting of links between one layer and the next. The same back propagation calculation can then be applied.

The network, or system error, E, is a measure of the success of the training, it is calculated by summing the squares of the difference between the ideal and real output states.

$$E = \frac{1}{2} \sum_k (t_k - o_k)^2$$

The process of presenting a pattern and adjusting the network is repeated for each pattern the network is to recognise. The whole process is repeated until the network error is reduced to an acceptable limit.

One requirement of the training algorithm is that a blank, untrained network must have randomly weighted links between nodes.

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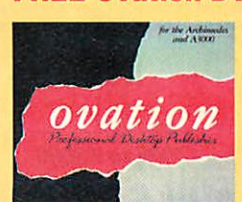
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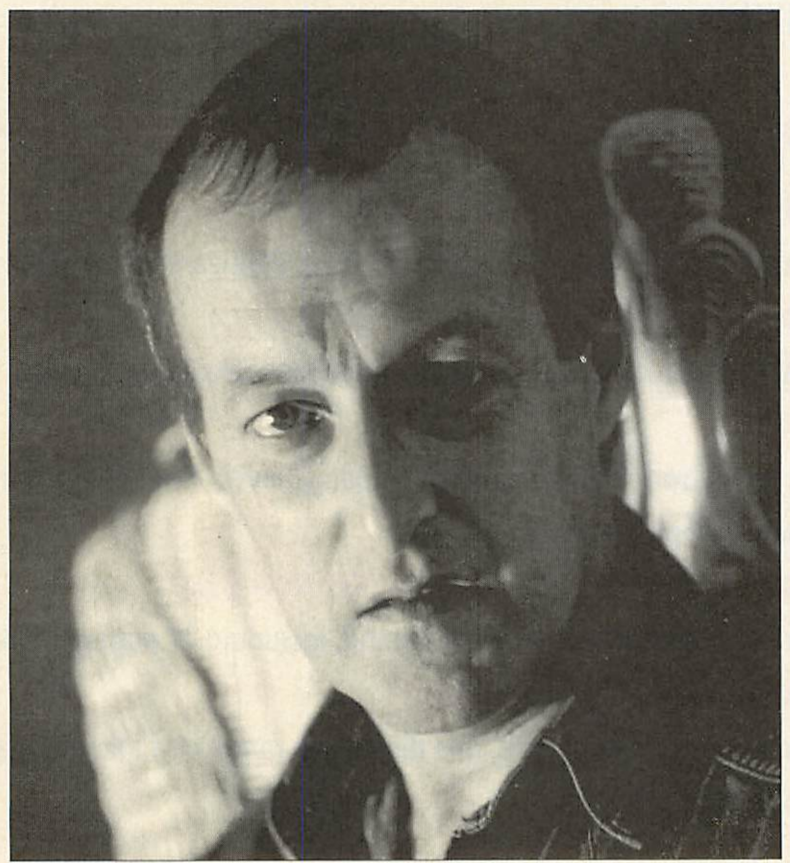
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THE MOXON INTERVIEW

COLIN THOMPSON



ROGER BERESFORD-JONES

Colin Thompson writes children's books. At least, that's what his publisher says on the back of *Ethel the Chicken* and *Sid the Mosquito*, but as far as I'm concerned they appeal to all ages, including mine.

Books like *The Paperbag Prince* and *Pictures of Home* are full of those wonderful, extremely detailed illustrations which you can stare at for days and still discover wonderful little touches like mice living under the floorboards and aeroplanes flying round inside light bulbs. And halfway through *Looking for Atlantis* there's an Archimedes sitting on a shelf, surrounded by manuals for *Impression*, *Artworks* and *Revelation ImagePro*.

'I write everything on *Impression*, design the illustrations in *Artworks*, *Poster* and *Vector*, and print it all out at a high magnification,' explains Colin. 'Then I hand paint all the illustrations and send the lot off to my publisher. I have to send the text as straight Ascii, as they haven't mastered the art of PostScript yet.'

> **'Computing was like a shot of heroin. I was completely hooked from day one'**

The results are quite stunning. The text is printed out in black, so it's easy to change just the black film to tailor a story to another language; using computers makes the whole process much more painless than usual.

'When home computers first started to appear, I thought they were complete rubbish,' Colin admits. 'Then my wife decided to send me out on evening classes, and I enrolled on this computer class. It was like a shot of heroin: I was completely hooked from day one. I started on a BBC, which at the time proved rather difficult to get hold of, and since then I've graduated through a couple of Masters, an A310, an A420, and now I'm on an A5000 with a ColourCard, CD-Rom drive and lots of other goodies.'

And these are exciting times for Acorn graphics enthusiasts: new graphics cards, a Vidc20 machine just round the corner, faster processors, 24-bit applications, improved colour printing, PhotoCD; the list goes on. Excited, then?

As soon as the new machine comes out, I'll get one,' says Colin confidently. 'I should think it'll be expensive, but I'll pay for it. Acorns are enthusiasts' machines, and are worth every penny.'

That's definitely true, but aren't you also tempted by other hardware platforms? Other software packages?

'There is a lot of pressure from the Mac market,' is the response, 'and sometimes it's hard to be loyal to Acorn. For example, I've just bought the upgrade to *ProArtisan*, which is absolutely brilliant, but take one look at *PhotoShop* on the Mac, and it doesn't look quite so good.

'I am tempted by Macs, but they're so slow when compared to the Acorns. One thing I would like to see is more software produced by Acorn themselves: there seems to be a lot of buck passing in the market. For example, Acorn relies on Computer Concepts for the DTP system being pushed on the continent: what kind of system could you have without *Impression*? Relying on just one company – like Computer Concepts – to create the software necessary for a certain market area isn't a great idea: whatever happened to competition?'

Still, the existing hardware does the job for Colin, and with the advent of PhotoCD, things are really looking interesting. He's just bought an Acorn multimedia unit, and his next book is being composed entirely in *Artworks*.

'It's a book full of cutouts,' says Colin. 'I print them out on a plotter and paint them in. The concept is a bit like an advent calendar, with opening doors and little flaps. Using a computer means I can line the layers up perfectly.

'PhotoCD will be a real bonus. At the moment I have to scan photos in using my scanner, drop them into *Artworks* and blow them up, printing onto tracing paper. With PhotoCD, I'll be able to skip the whole scanning business, and the quality of the photograph on screen will be so much better.'

So, it's looking good for Colin's future books. As with his books, everyone lives happily ever after, and it's all thanks to his trusty A5000. Isn't that nice.

Mark Moxon

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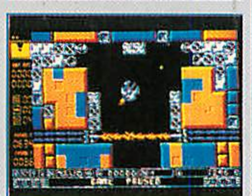
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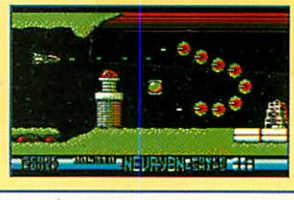


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